FLEET OWNER

DEVOTED TO THE BETTER OPERATION AND MAINTENANCE OF ALL AUTOMOTIVE FLEETS

VOL. 36 APRIL, 1946 NO. 4

CHNOLOGY DEPT!

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Fresh as Tomorrow's Sunrise

UR FRESH FRUIT SALADS have a thousand-mile dressing." And fresh egetables, too, travel from every part of e country to everywhere—at the peak their flavor and nourishment value.

he distribution system that makes this ssible, makes our daily diet the best lanced in the world, makes us the althiest people.

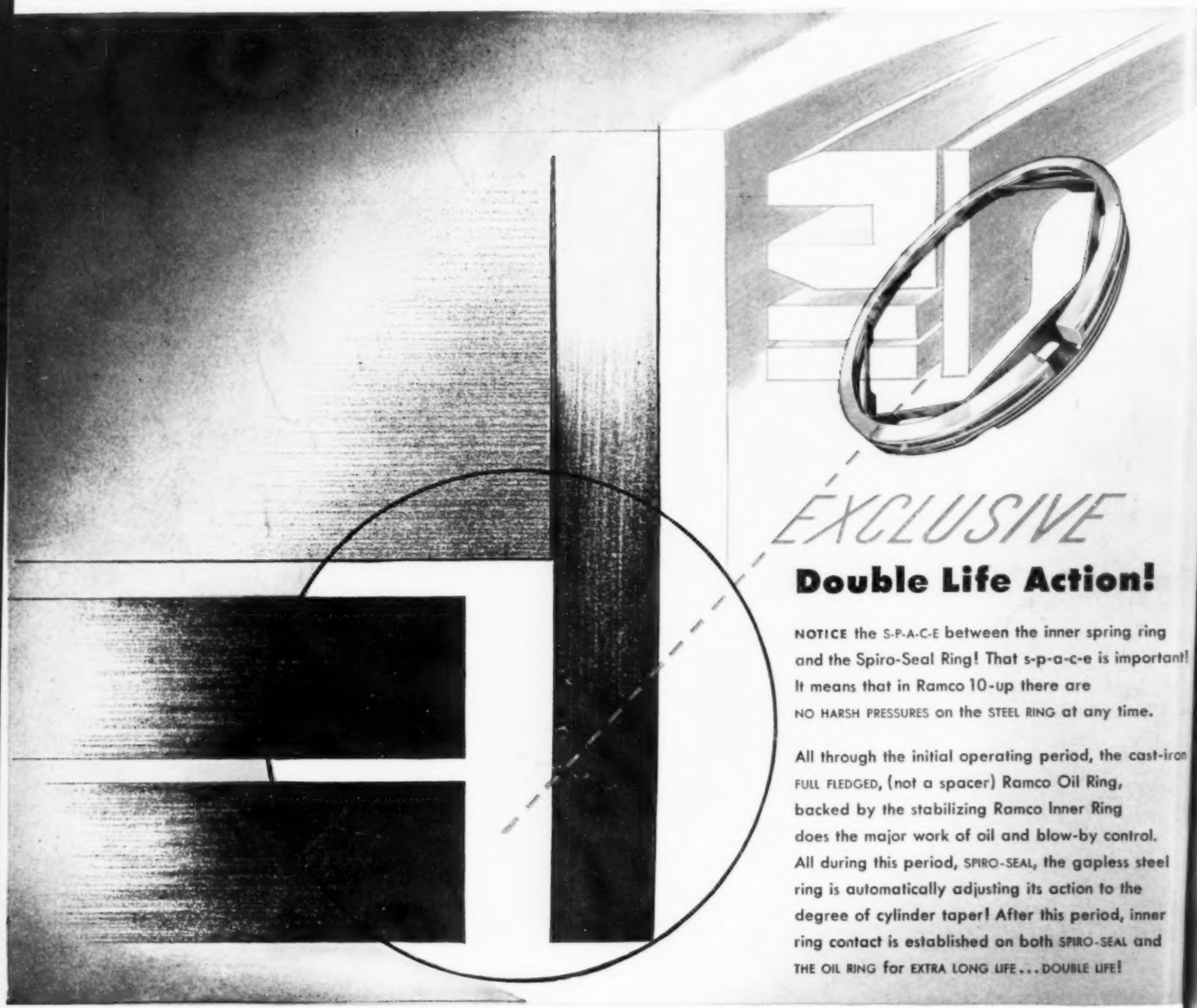
rucks play many parts in performing is vital public service—because *all* fruits and vegetables that go to market, go all or part of the way by trucks that must maintain rigid time schedules. In this field, as in so many in which dependability and economy are the basis for preference, White Super Power Trucks are the choice of the leaders.

THE WHITE MOTOR COMPANY
Cleveland, Ohio, U. S. A.
THE WHITE MOTOR COMPANY OF CANADA LIMITED, Factory at Montreal

White

OR MORE THAN 45 YEARS THE GREATEST NAME IN TRUCKS

Here's the NO.1 ANSWER to the QUESTION:



EXCLUSIVE

Double Life Action!

NOTICE the S-P-A-C-E between the inner spring ring and the Spiro-Seal Ring! That s-p-a-c-e is important! It means that in Ramco 10-up there are NO HARSH PRESSURES on the STEEL RING at any time.

All through the initial operating period, the cast-iron FULL FLEDGED, (not a spacer) Ramco Oil Ring, backed by the stabilizing Ramco Inner Ring does the major work of oil and blow-by control. All during this period, SPIRO-SEAL, the gapless steel ring is automatically adjusting its action to the degree of cylinder taper! After this period, inner ring contact is established on both SPIRO-SEAL and THE OIL RING for EXTRA LONG LIFE... DOUBLE LIFE!

"Why is RAMCO 10-Up the ALL PURPOSE RING?"

The Ramco 10-Up patented Double Life Principle is the No. 1 answer! This Double Life Principle is fundamental to engineering a ring that works with equal perfection in both re-bore jobs and re-ring jobs! There are many other reasons, too. For booklet, see your Ramco jobber or write Ramsey Corporation, 3713 Forest Park Blvd., St. Louis, Mo.

Factories at St. Louis, Mo.; Fruitport, Mich.; Toronto, Can.

RAMCO *10 up* **RE-POWER** *Ring*

PROVEN BEST FOR ALL TRUCK AND FLEET REPOWERING JOBS..... RE-BORE OR RE-RING!

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A development of
B.F.Goodrich
FIRST IN RUBBER

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DETROIT

Razing cane—75% cheaper

A typical example of B. F. Goodrich development in rubber

DOWN in Louisiana sugar cane is a big crop. Big in many ways. Cane stalks stand 10 to 15 feet high. They're tough, sturdy, often 1½ to 2 inches in diameter. And cane has to be harvested during the winter rainy season—even when there's water standing in the rows.

For years farm work in this southern sugar bowl was a job for men and horses. It was slow, heavy work—planting, cultivating, cutting the heavy cane by hand in wet fields. They tried mechanized farm equipment—but it didn't work well in the cane fields until special rubber tires were developed. B. F. Goodrich took the design of its regular tractor tire which had worked so well in other sections, put double-high cleats on it for greater traction.

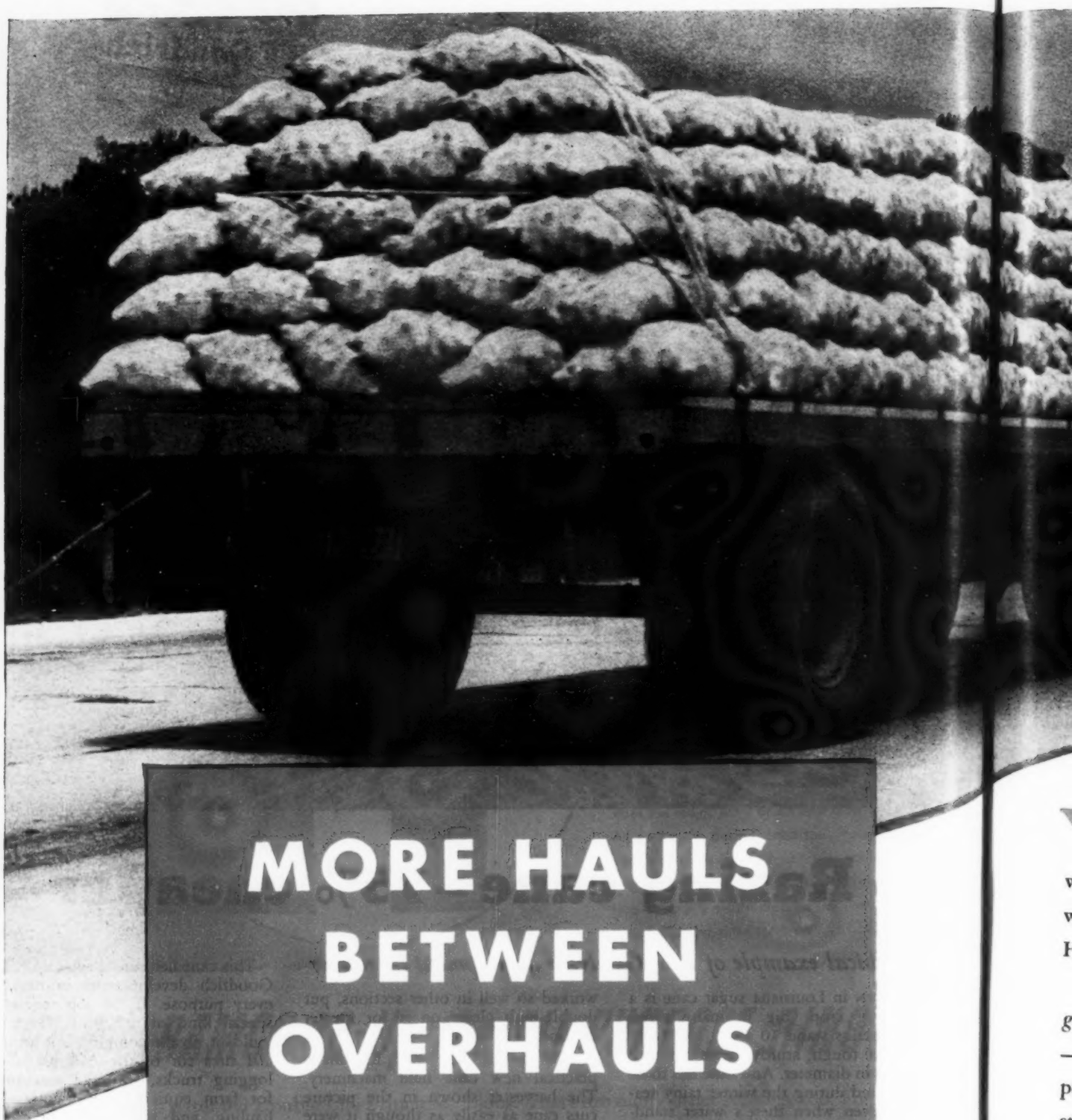
This special cane field tire made practical new cane field machinery. The harvester shown in the picture cuts cane as easily as though it were grass, lays it in rows. Labor costs only 25c per ton. Hand labor—when you can get it—costs about $1 per ton. Thus the machine method saves 75%. Time saving in case of an early freeze may be even more important.

A special crane, mounted on this same kind of tires, picks up the cane stalks with grappling hooks, drops them onto rubber-tired wagons. Time and money are saved on every operation.

This cane field tire is typical of B. F. Goodrich developments in tires for every purpose. If the job requires a special kind of tire B. F. Goodrich builds it. In the complete line are special tires for off-the-road usage, for logging trucks, for road machinery, for farm equipment, for intra-plant hauling, and many other purposes. Before you buy tires, check the B. F. Goodrich man. He can show you an improved tire for every purpose. *The B. F. Goodrich Company, Akron, Ohio.*

Tires and Tubes BY
B.F. Goodrich

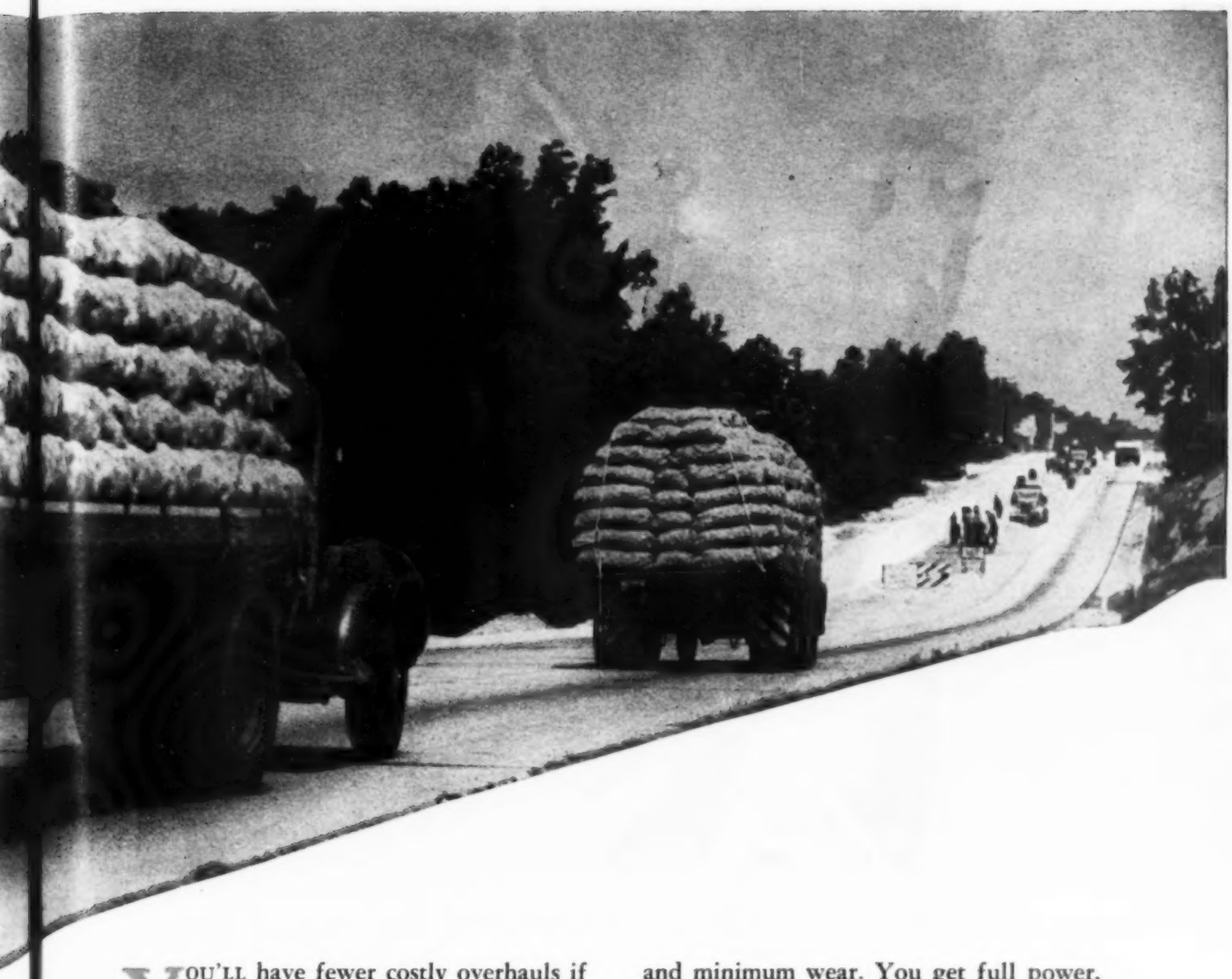
FLEET OWNER, April, 1946. Vol. 36, No. 4. Published monthly by the Ferguson Publishing Co., 90 West St., New York 6, N. Y. Subscription price $3.00 per year in the United States and Canada. Single copies 35¢. Acceptance under the act of June 5th, 1934, authorized April 24th, 1941.



TUNE IN
THE TEXACO STAR
THEATRE EVERY SUNDAY
NIGHT STARRING
JAMES MELTON
WITH HIS GUEST,
ED WYNN — CBS

TEXACO

TEXACO



YOU'LL have fewer costly overhauls if you keep your truck engines clean with effective lubrication. Operators everywhere do this with *Texaco D-303 Motor Oil*. Here's why —

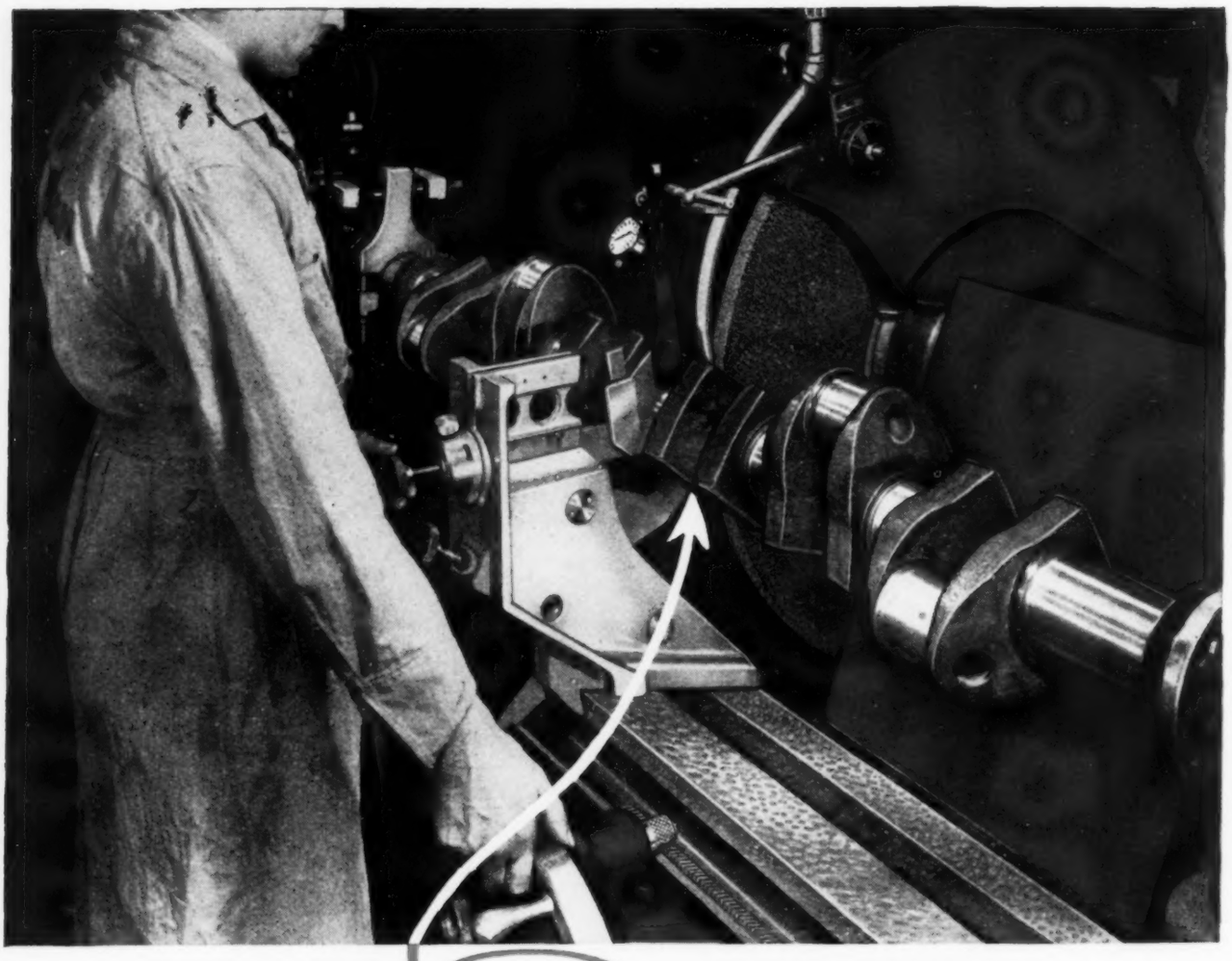
Texaco D-303 Motor Oil is both *detergent* and *dispersive*. It *keeps* engines clean — *holds* deposit-forming materials in suspension until drained. Consequently, rings stay free, valves active. There is no scuffing and minimum wear. You get full power, use less fuel, spend less for maintenance.

To make rear-end and transmission gears run more quietly, last longer — use Texaco transmission and differential lubricants.

For Texaco Products and Engineering Service, call the nearest of the more than 2300 Texaco distributing plants in the 48 States, or write The Texas Company, 135 East 42nd Street, New York 17, N. Y.

Lubricants and Fuels

FOR THE TRUCKING INDUSTRY

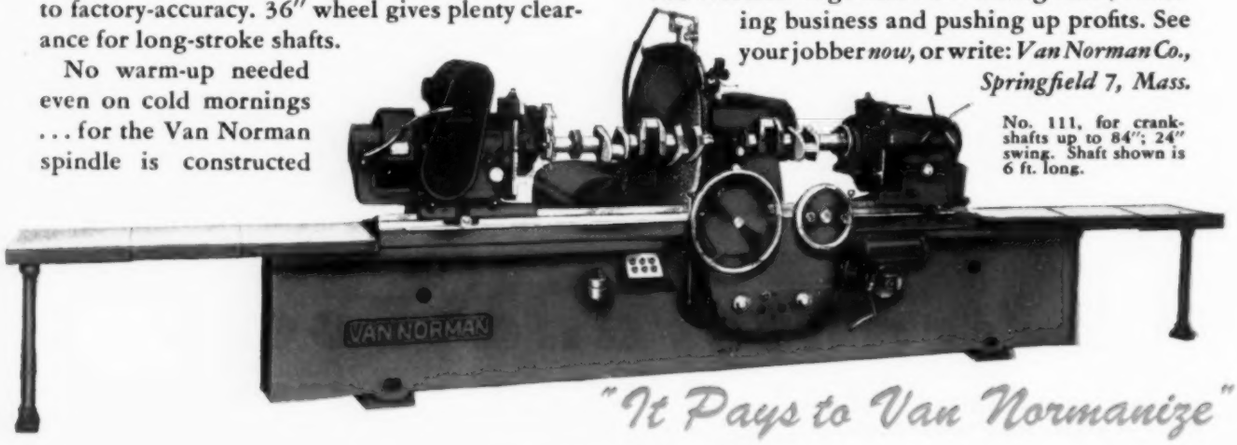


THE BIGGEST CRANKSHAFTS
are reground with Top Speed and Accuracy

...on the VAN NORMAN No. 111

This massive, modern machine underwrites the success of every regrinding job with 7 tons of weight . . . the rock-solid basis of Van Norman precision. Operator can take any shaft up to 84″, and up to 24″ swing . . . set it up quickly and easily with Van Norman's exclusive crank-holding fixtures . . . throw the switch and grind to factory-accuracy. 36″ wheel gives plenty clearance for long-stroke shafts.

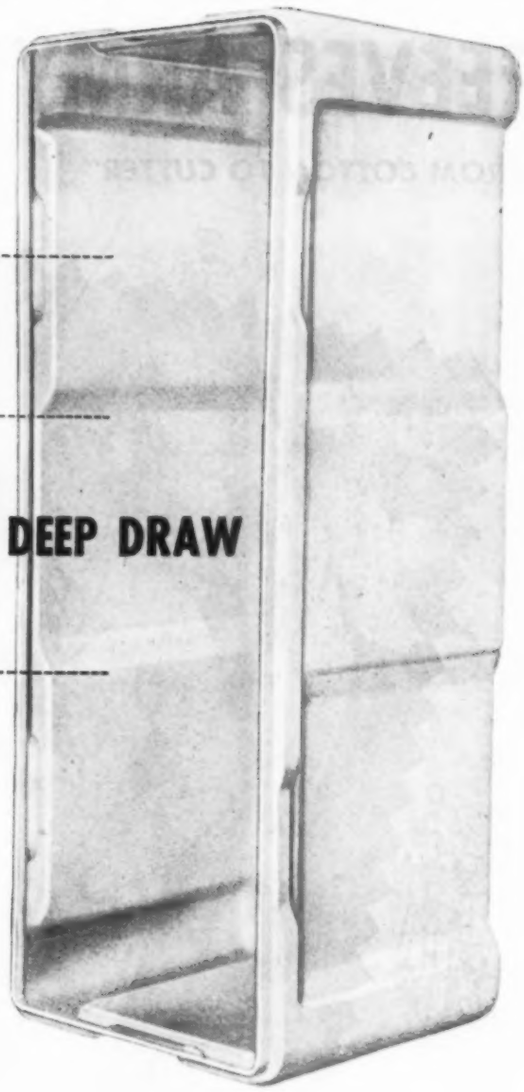
No warm-up needed even on cold mornings . . . for the Van Norman spindle is constructed as a complete unit, with pre-lubed ball and roller bearings for frictionless rotation at low temperatures, assuring micro-precision and finish. Finger-tip workhead control is provided by oilless clutch. These and all other necessary profit-factors are engineered into this Van Norman quality machine tool . . . also into the smaller No. 666 for shafts up to 48″. That's why, all over the world today, Van Norman Regrinders are cutting costs, building business and pushing up profits. See your jobber *now*, or write: *Van Norman Co., Springfield 7, Mass.*



No. 111, for crankshafts up to 84″; 24″ swing. Shaft shown is 6 ft. long.

"It Pays to Van Normanize"

FINAL, ACCURATE DIMENSIONS IN 1 DEEP DRAW



REVERE
MAGNESIUM ALLOYS

You can do more with magnesium in one deep draw than with any other engineering metal. You can draw it deeper in one stroke of the press, and far closer to the precise dimensions on your prints. For magnesium alloy sheet is deep drawn at a temperature above its recrystallization point so that the ductility of the metal is at a maximum.

From this you gain five important advantages . . .

1. You can effect greater deformation without danger of fracture. Reductions up to 65% in one operation are common.
2. Less power is needed because yield strength is lowered in this temperature range.
3. Time and money are saved through elimination of interstage annealing and multiple press operations.
4. Tool costs are materially reduced because no interstage dies are needed.
5. Springback may be eliminated, so that the part can be drawn to a final fit in one stroke.

Consider what this can mean in terms of production speed and economy. Then add to that the outstanding feature of magnesium alloys—their feather-light weight, their extremely high ratio of strength to weight—and you see how better airplanes, better truck and bus bodies can be made at a substantial saving in the cost of time, labor and tools.

Revere light metal products include magnesium sheet and plate, rod and bar, tube, extruded shapes, and forgings in all standard wrought alloys, as well as aluminum alloy tube, extruded shapes and forgings. A Revere Technical Advisor will gladly consult with you about the application of these products to your business. Get in touch with Revere.

Weighing only 5 lbs., this box 29" long, 11" wide and 10¾" deep was made of Revere magnesium alloy 0.081" sheet by Brooks and Perkins, manufacturing engineers, 2457 Woodward Avenue, Detroit, Mich. Produced in *one* draw on a 200-ton hydraulic press at a temperature of 550°F. An additional operation formed the shoulder at the top to receive the lid. Made to carry military rockets, these deep-drawn magnesium boxes suggest how readily magnesium can be used to lighten the weight of bus and truck body parts as well as numberless other products.

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Now you can specify durable, smart looking Reeves Army Twill for uniforms and work clothes. Its high tensile strength insures rugged wearability. It tailors smartly, too, and is color-fast to sun, water and perspiration. Sanforized Shrunk*, it is the fabric for long-lasting economy. Remember—over 90 million yards of this same fabric helped equip America's fighting men—exceeding Government specifications under the toughest climatic and combat conditions.

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You're sure when you say—

DIAMONDS RUN COOL ...M·I·L·E·S LONGER

GRS-10

All Diamond heavy service truck tires are now specially fortified against the hazards of high speeds and long runs through the use of GRS-10, a vastly superior new kind of rubber. Tread wear is slowed down. Tires run cooler. Tread cracking is practically a thing of the past, and you have the greatest assurance of uniform high quality.

ELECTRONICS

In addition, these big, broad huskies are given extra life insurance through the use of electronically treated rayon cord. This modern scientific process permits a weftless cord type of construction — eliminating heat-generating, cross-woven cords — providing peak protection against road shocks and bruises.

When you buy for safety and long mileage, you're sure when you insist on Diamond.

Diamond
RUBBER COMPANY
A Division of The B. F. Goodrich Company

"HEAVY SERVICE" TRUCK TIRES—AKRON, OHIO—LOS ANGELES, CALIF.

WHERE you want it . . . WHEN you want it!

200 lbs Pressure Vaporized Steam Cleaning Solution In 2 minutes

Speed Maintenance Cleaning Repairs and Overhaul With

NEW OAKITE-VAPOR STEAM CLEANING UNIT

Here at last is vaporized steam detergent cleaning at its best! Quality-engineered, the Oakite-Vapor Steam Cleaning Unit embodies all the features you ever hoped for. It's construction is rugged. It's compact. It's a dependable steam supply source readily adaptable for maintenance, repair or overhaul cleaning and degreasing in the shop, out in the yard, or over the highway.

Check These Revolutionary Features:

SIMPLICITY OF OPERATION: Single valve adjustment after starting provides simultaneons TWO-GUN cleaning action at full operating capacity.

STARTING FROM COLD unit generates 100 lbs pressure in one minute; 200 lbs in two minutes.

HIGH DELIVERY CAPACITY: Unit will deliver 60 gallons of vaporized cleaning solution for one hour under pressures adjustable up to 200 lbs.

SOLUTION TANK CAPACITY of 80 gallons assures extensive cleaning operation before recharging.

VIBRATIONLESS OPERATION even at pressures in excess of requirements assures long unit life.

Use the Oakite-Vapor Steam Cleaning Unit to expedite cleaning for quick inspection before repair or replacement such disassembled Diesel and gasoline engine parts as:

DIFFERENTIALS • TRANSMISSIONS • CRANKSHAFTS • AXLES FILTERS • CARBURETORS • BLOCKS • FLY WHEELS • PINIONS

Cleaning Chassis • Springs • Brake Drums
Safe Cleaning Grease Pits • Lifts • Floors
Cleaning Engines in Place • Speed Up Paint Stripping.

Illustrated Technical Data includes full description of unit, operating instructions, complete specifications, suggested uses. Bulletin gladly mailed FREE on request. Write TODAY!

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Technical Service Representatives Conveniently Located in All Principal Cities of the United States and Canada

OAKITE *Specialized* **CLEANING**

MATERIALS · METHODS · SERVICE · FOR EVERY CLEANING REQUIREMENT

FLEET OWNER

Charter CCA Member

Vol. 36 NEW YORK, APRIL, 1946 No. 4

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PUBLISHED MONTHLY IN THE INTERESTS OF AUTOMOTIVE FLEET OWNERS WHO DO ALL OR PART OF THEIR OWN SERVICE WORK, AND DEVOTED TO THE BETTER OPERATION AND MAINTENANCE OF TRUCK, BUS, TAXICAB, CAR AND ALL AUTOMOTIVE FLEETS BY

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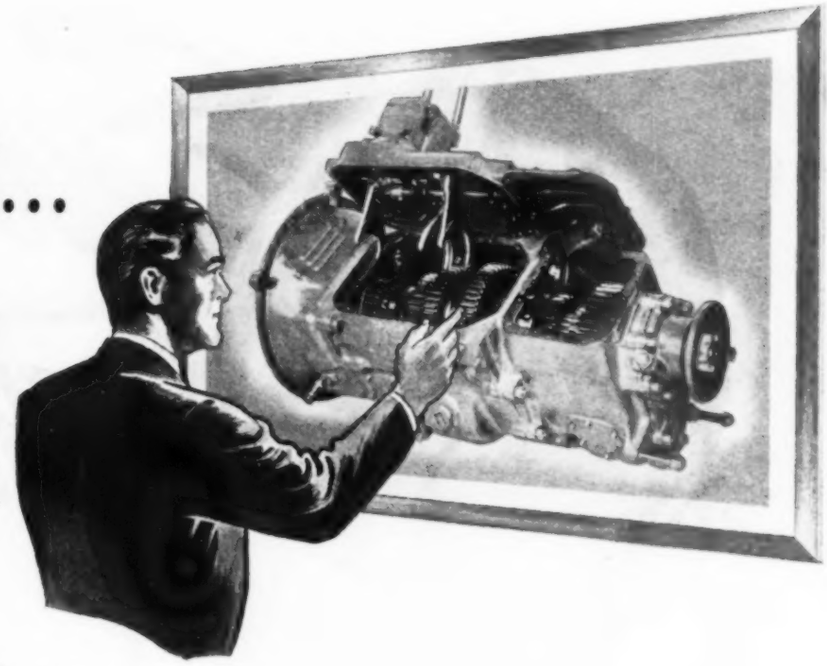
That's right... this unusual motor oil will also reduce transmission trouble



Stanolube HD

Transmissions in heavy duty bus and truck service often run as hot as crankcases—or hotter. Heat and agitation of any lubricant cause oil oxidation. Just as oil oxidation in the engine results in varnish formation on pistons and cylinders, so does it cause varnish and sludge in gear cases.

Stanolube HD contains both an oxidation inhibitor and a detergent. It resists the formation of oil oxidation products and also keeps these and other contaminants from settling out of the oil.

Fleet records show that Stanolube HD eliminates varnish and other deposits in both engine and transmission. It also contains an anti-foam agent which eliminates troublesome foaming. If you are having trouble with transmission failures, let a Standard Oil Automotive Engineer analyze your problem. He can tell you the SAE grade of Stanolube HD you need, the grade that is comparable with the gear lubricant you now use. Standard Oil Company (Indiana), 910 South Michigan Avenue, Chicago 80, Illinois.

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Dick Haymes Show...

SPARK PLUGS

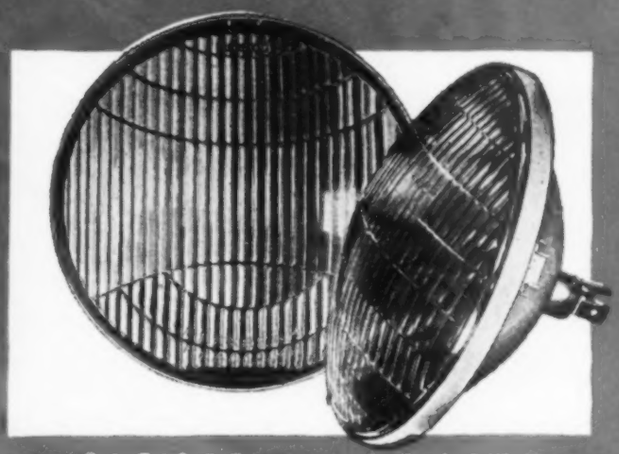
SATURDAYS 8 P. M., E. T. • 149 CBS STATIONS

THE ORIGINAL EQUIPMENT LINE

AUTO-LITE

OF TRUCKS, TRACTORS, BUSES

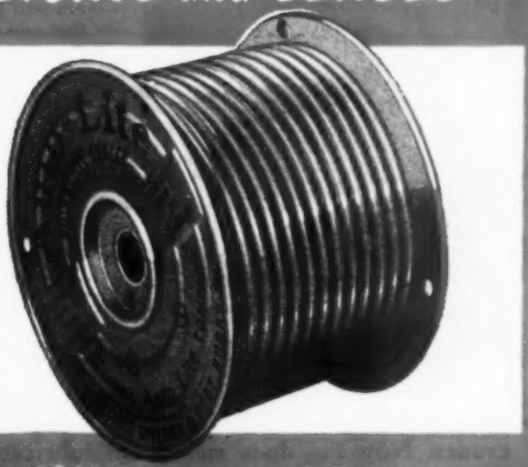
HEAVY DUTY BATTERIES



LIGHTS and LENSES

Switch to Auto-Lite to help get top economy and the best performance from trucks, tractors and buses. Auto-Lite spark plugs are ignition engineered. Auto-Lite heavy duty batteries, made with fibre-glass, outlast ordinary batteries without this feature. Auto-Lite offers such advancements as battery cable with anti-corrode terminals and famous Steelductor spark plug wire. Auto-Lite sealed beam units continue to function even when the lens is broken. Switch to Auto-Lite; "money cannot buy better products."

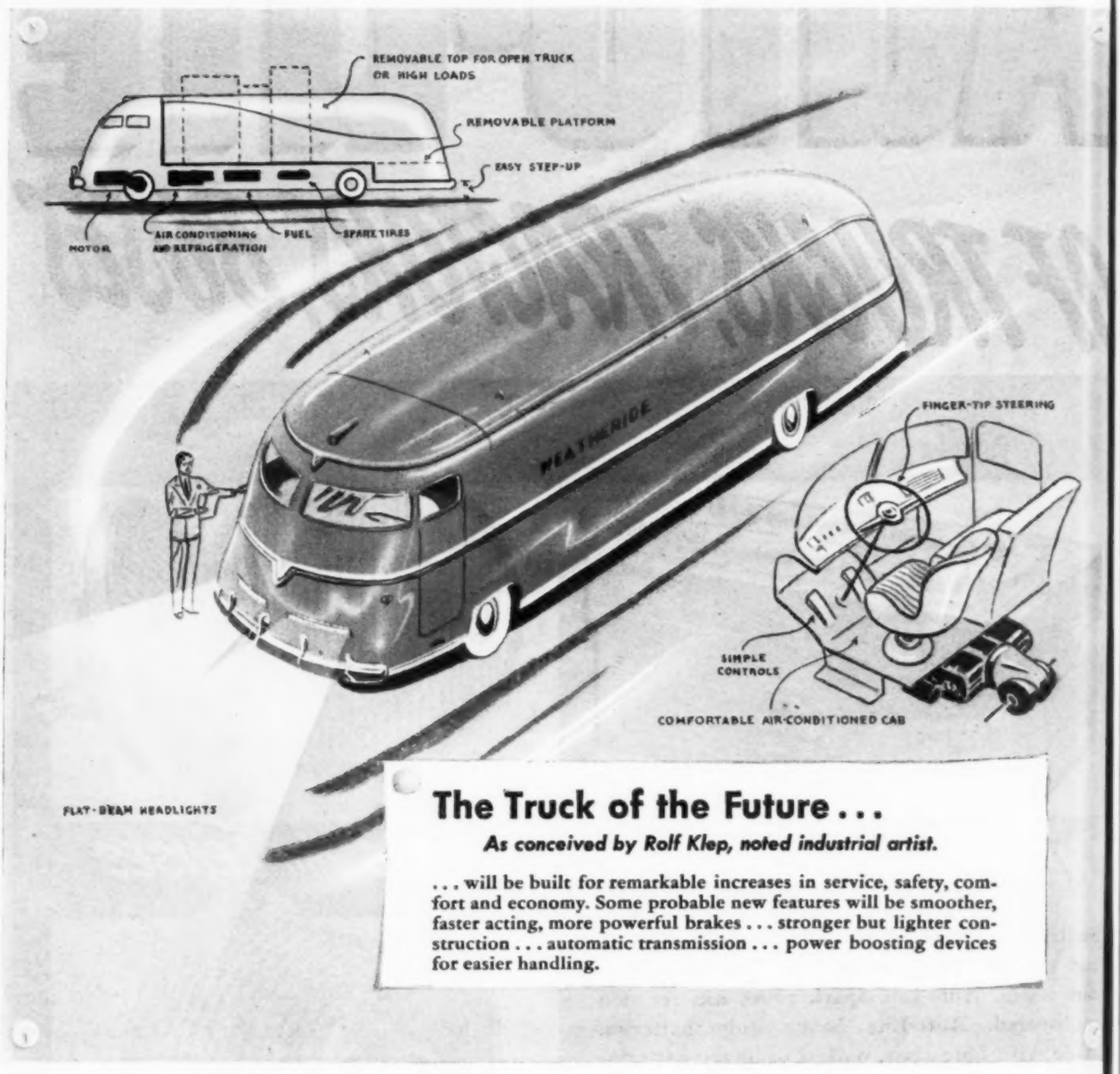
THE ELECTRIC AUTO-LITE COMPANY
TORONTO 1, ONTARIO TOLEDO 1, OHIO



WIRE and CABLE

THE ORIGINAL EQUIPMENT LINE

This truck is still on paper . . .



The Truck of the Future . . .

As conceived by Rolf Klep, noted industrial artist.

. . . will be built for remarkable increases in service, safety, comfort and economy. Some probable new features will be smoother, faster acting, more powerful brakes . . . stronger but lighter construction . . . automatic transmission . . . power boosting devices for easier handling.

The truck above will bring entirely new performance standards . . . tomorrow.

But the oil it will use tomorrow, you can have today. Veedol 90 H.D. Lubricates superbly because it's made 100% from Pennsylvania crudes. Now . . . does *more* than lubricate—

Veedol 90 H.D. is fully detergent, dispersive and anti-corrosive. It can give your present equipment more miles and more profitable miles. It can help keep your trucks out of the repair shop. It can greatly increase service between overhauls.

Write for full information and prices, right now. Veedol 90 H.D. comes in S.A.E. 10 to 50. Tide Water Associated Oil Company, 17 Battery Place, New York 4, N. Y.—Thompson Bldg., Tulsa 2, Okla.

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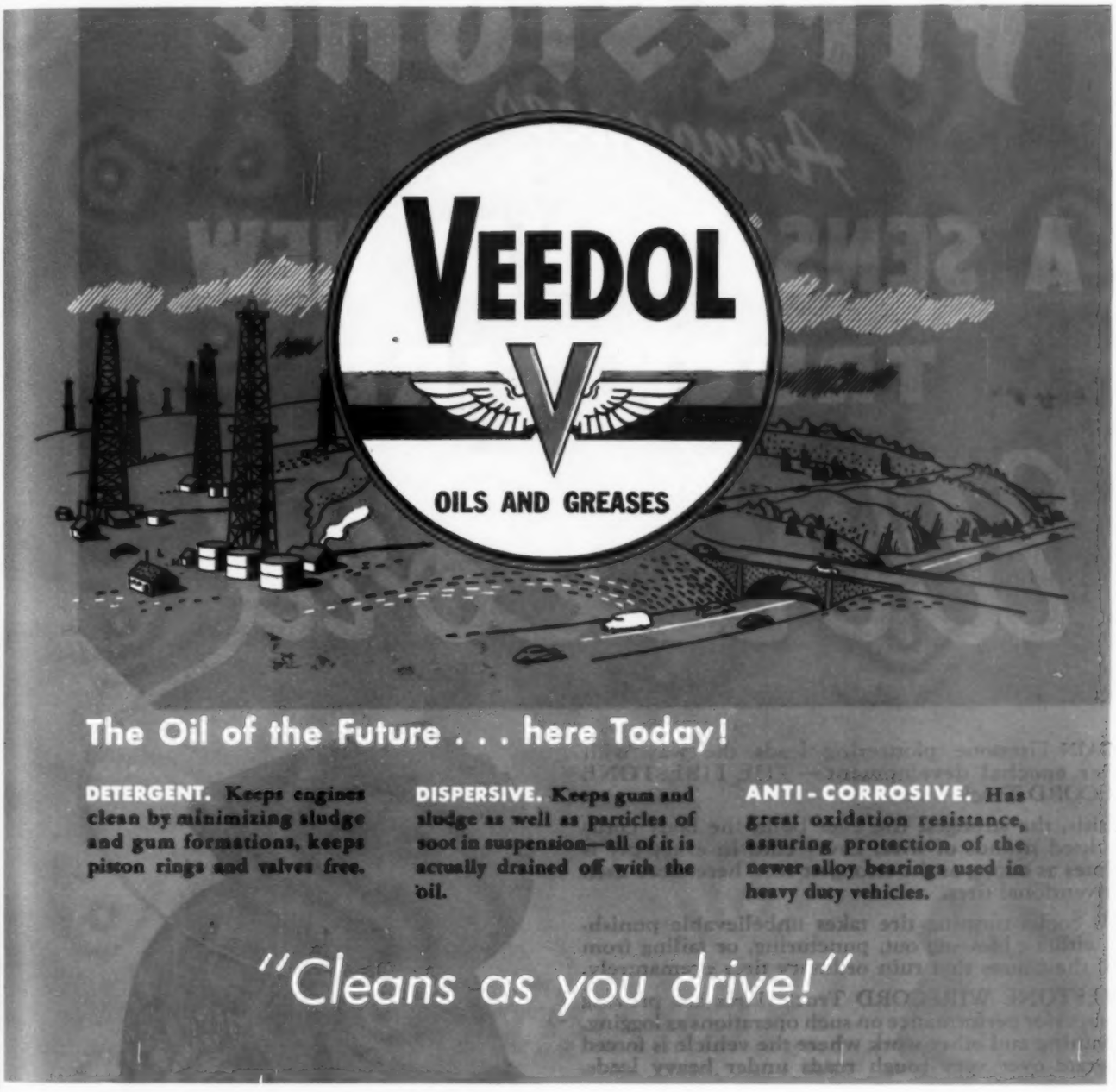
. . . the oil that will run it isn't!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OILS AND GREASES
The Oil of the Future . . . here Today!
DETERGENT. Keeps engines clean by minimizing sludge and gum formations, keeps piston rings and valves free.
DISPERSIVE. Keeps gum and sludge as well as particles of soot in suspension—all of it is actually drained off with the oil.
ANTI-CORROSIVE. Has great oxidation resistance, assuring protection of the newer alloy bearings used in heavy duty vehicles.
"Cleans as you drive!"

Send for the Veedol P.M. Plan, too!

The Veedol Preventive Maintenance Plan, successful with over 800 fleets, can help yours. The plan fits any number of units—costs only 18¢ per truck. Ask about it.

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Firestone

Announces

A SENSATIONAL NEW TRUCK TIRE

the Wire Cord

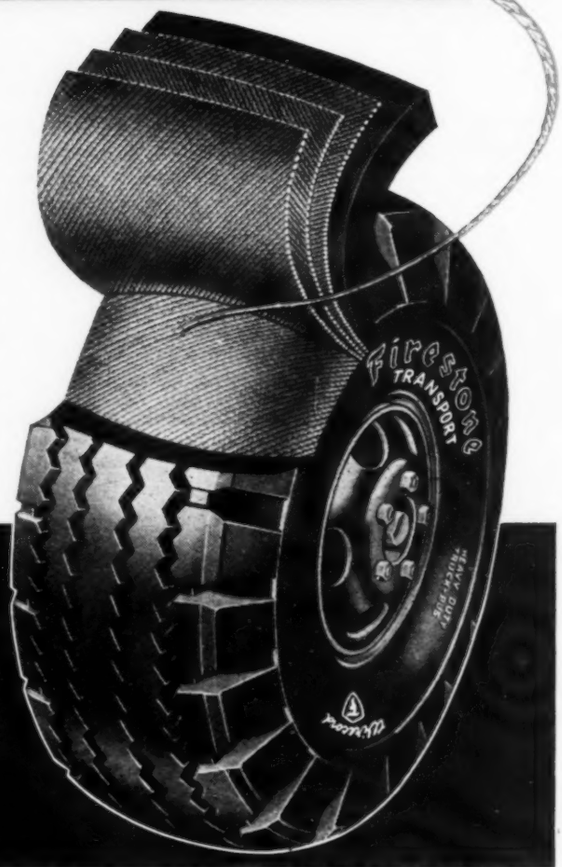
AGAIN Firestone pioneering leads the way with another epochal development — THE FIRESTONE WIRECORD Truck Tire.

In this, the strongest tire ever built, the body cords are twisted strands of wire. Every cord in every ply is five times as strong as the strongest cord heretofore used in conventional tires.

This cooler-running tire takes unbelievable punishment without blowing out, puncturing, or failing from any of the causes that ruin ordinary tires prematurely.

FIRESTONE WIRECORD Truck Tires are proving their superior performance on such operations as logging, strip-mining and other work where the vehicle is forced to operate over very rough roads under heavy loads.

Although not yet in volume production, this amazing new type tire is another example of Firestone's leadership in bringing you the Best Today . . . Still Better Tomorrow.



Firestone
Wire Cord
TRUCK TIRE

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Here's why most Motorists prefer Champion Spark Plugs

THEY'RE DEPENDABLE!

Survey after survey proves that Champion Spark Plugs are first choice of most motorists. This preference is based on the fact that for 35 years Champions have represented the ultimate in dependability. This choice is reflected in the bus and truck field where Champions insure the maximum in power, speed, economy and efficiency.

CHAMPION SPARK PLUG COMPANY, TOLEDO 1, OHIO

FOLLOW THE EXPERTS • SPECIFY DEPENDABLE **CHAMPIONS** FOR YOUR FLEET

"*That* hill? Man, this big, new Ward LaFrance flattens *all* hills!"

Tug Hill, Howlett Hill, Long Hill, *any* hill — you can depend on the big, new Ward LaFrance heavy duty trucks. They're rugged, reliable and packed with power.

For economical hauling your best bet is a Ward LaFrance. Winter or Summer — 30° below or 110° in the shade — your Ward LaFrance will give you consistent performance day after day.

The new Ward LaFrance trucks and over-the-road tractors, both gasoline and Diesel, are designed, engineered and manufactured to meet all hauling requirements with maximum efficiency. Built to take a beating and stay on the job, these dependable trucks are setting new records for stamina and reliability.

For complete information about these trucks that are setting new standards of performance, see your local dealer. If no dealer has yet been appointed in your community, write direct to factory.

WARD MOTOR TRUCKS LA FRANCE

WARD LA FRANCE TRUCK DIVISION
Great American Industries, Inc.
ELMIRA, NEW YORK

There's more power for you in today's gasoline

IT'S NO GREAT PROBLEM to get extra power, performance and economy out of today's gasoline if you do just two things:

1. ***Survey your equipment and make sure every engine is modernized to take advantage of today's better gasoline. This may, for example, mean the changing of pistons, the removal of extra cylinder-head gaskets—or just the advancing of ignition timing.***
2. ***Keep gasoline progress in mind when you plan on acquiring new units—and make sure the engines are designed to get the most power out of improved gasolines.***

Keeping your *engines* in line with *gasoline progress* will help you hold down your ton-mile costs.

ETHYL CORPORATION, *Chrysler Building, New York 17, N. Y.*

Manufacturer of Ethyl fluid used by oil companies to improve the antiknock quality of aviation and motor gasolines

U.S. ROYAL *Fleetway*. .

U. S. ROYAL FLEETWAY *plus* . .

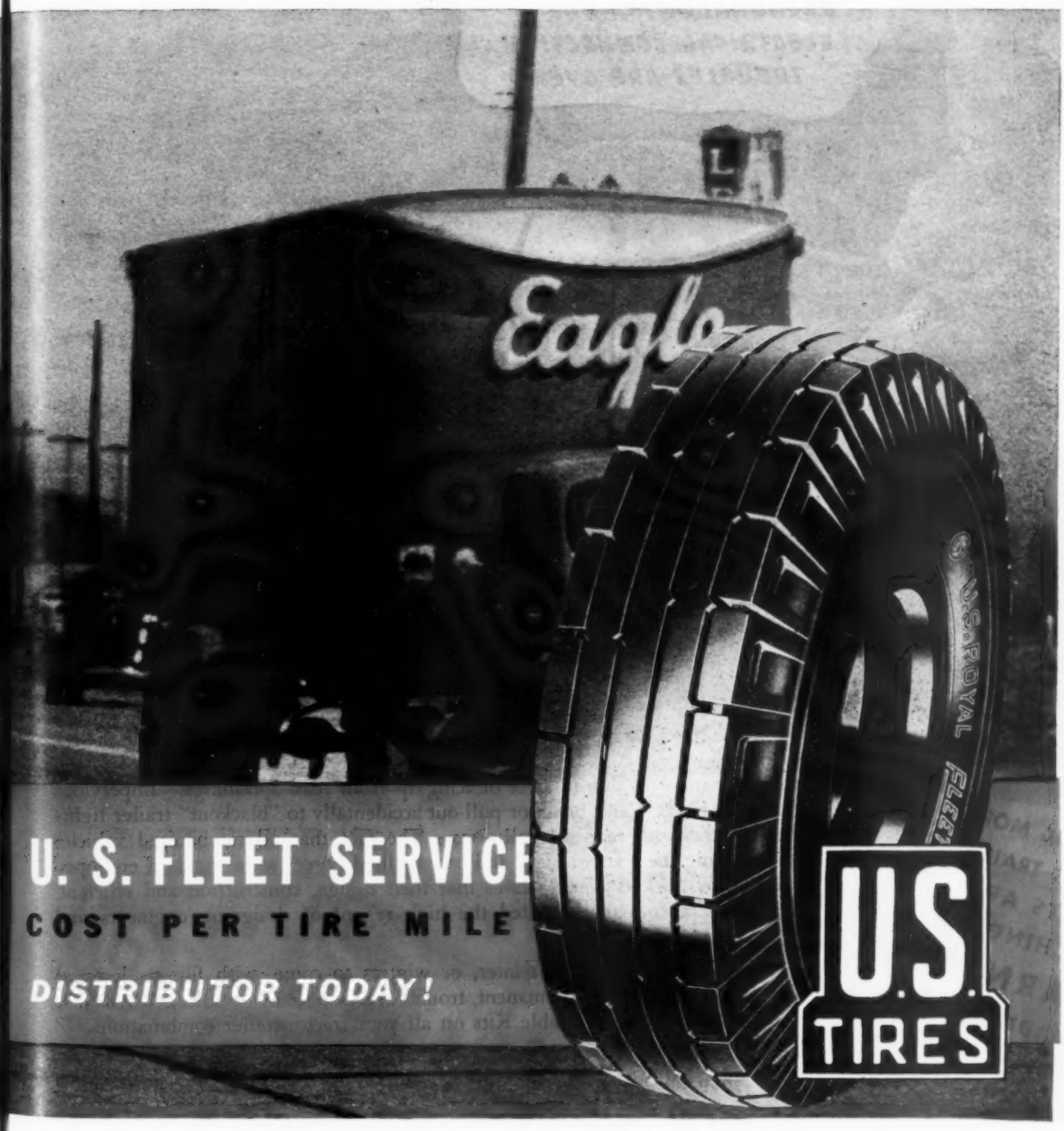
THE RIGHT COMBINATION FOR LOWER

PHONE *YOUR U. S. TRUCK TIRE*

UNITED STATES

Serving Through Science

built to deliver the goods



U. S. FLEET SERVICE

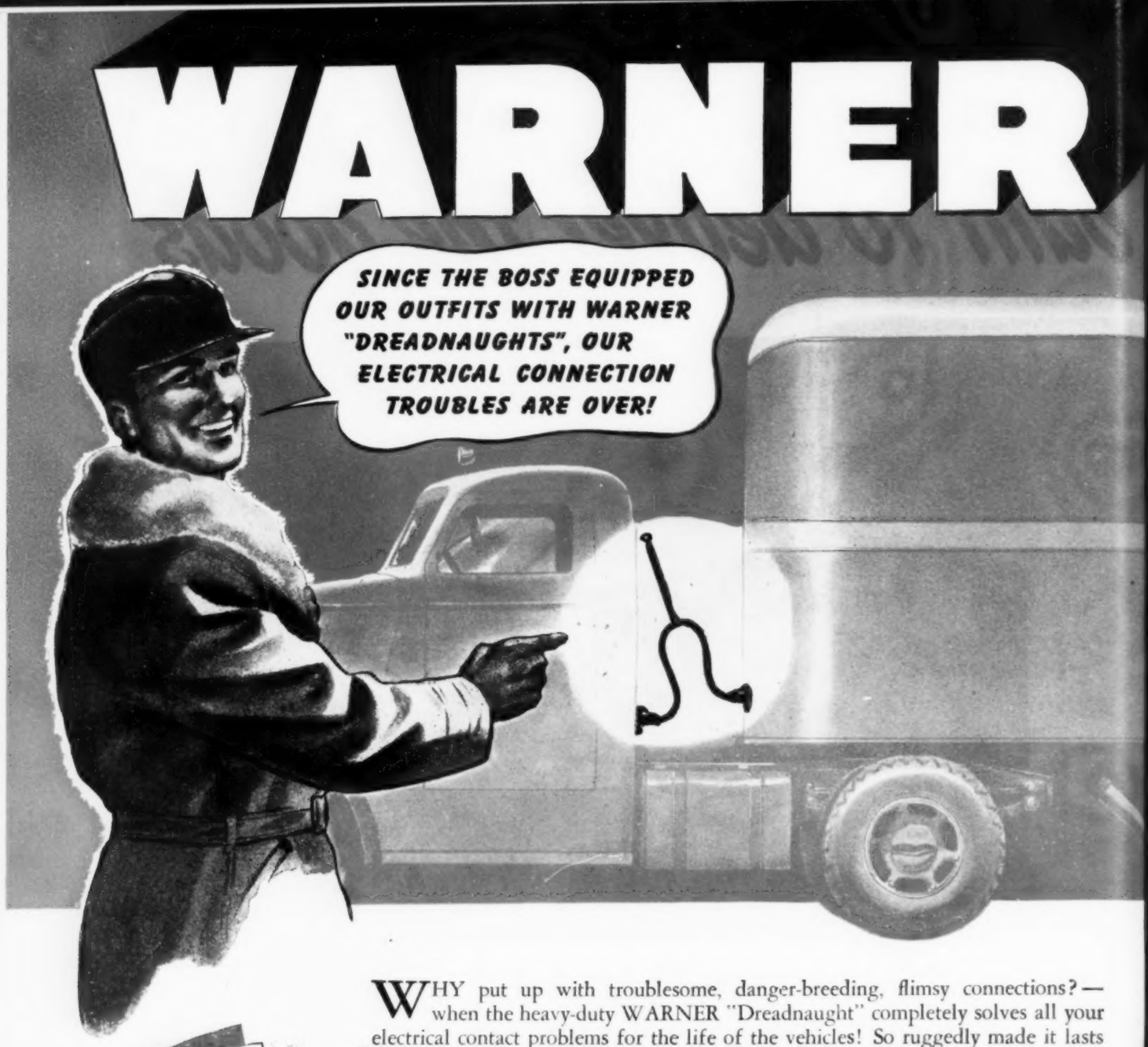
COST PER TIRE MILE

DISTRIBUTOR TODAY!

RUBBER COMPANY

1230 AVENUE OF THE AMERICAS • ROCKEFELLER CENTER • NEW YORK 20, N. Y.

WARNER



WHY put up with troublesome, danger-breeding, flimsy connections? — when the heavy-duty WARNER "Dreadnaught" completely solves all your electrical contact problems for the life of the vehicles! So ruggedly made it lasts indefinitely — first cost is last cost. Weather-proof — fully protected — can't freeze and snap off due to sleet or icing-up from road splashings. Impervious to rain and mud. Can't break or pull-out accidentally to "blackout" trailer lights to invite fines and rear-end collisions. The fact that all mechanized vehicles bought during the war for U. S. and other Allied Forces were standard equipped with Warner Sockets demonstrates that their design, construction and efficient, trouble-free performance merited the high regard of designing engineers and procurement staffs.

Don't struggle through this winter, or winters to come, with flimsy electrical connections — get set for permanent, trouble-free service by installing WARNER "Dreadnaught" Coupling-Cable Kits on all your tractor-trailer combinations.

MORE AND MORE LEADING TRAILER FLEETS ARE SWITCHING TO WARNER "DREADNAUGHT" ELECTRICAL CONNECTIONS

Immediate Deliveries

Through Leading Truck and Trailer Dealers and Automotive Jobbers

Get WARNER "Dreadnaught" Coupling-Cable Kits through the dealer from whom you bought your trucks or trailers — or your nearest automotive jobber. If he is out of them — write direct to us.

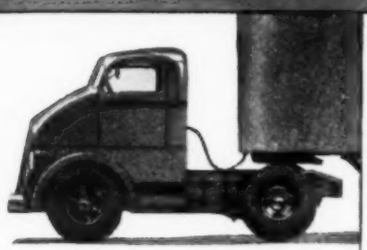
"Dreadnaught" ELECTRICAL CONNECTION COUPLING-CABLE KIT for ALL Tractor-Trailer Combinations

Rugged, Permanent, Weather-Proof Installation Assures Trouble-Free Service for Running Lights, Stop Signals, Turn Signals, Parking Lights — All Electrical Contacts FOR LIFE OF THE VEHICLES.

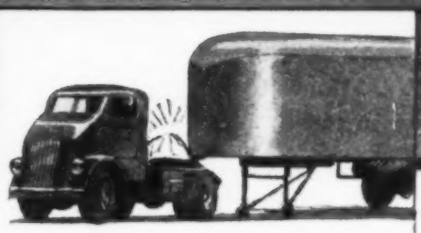
THIS COMPLETE KIT EASILY INSTALLED!

The WARNER "Dreadnaught" Kit includes 2 ruggedly constructed, weather-proof Coupling Sockets. (1 each for cab and trailer). Heavy-Duty Coupling-Cable with wires and rugged connector units for all electrical requirements molded in extra heavy, flexible rubber "hose," as easy to plug in or out as a radio — Cable Supporting Spring and Clamp — complete with Mounting Bolts, Nuts and Washers for quick, easy installation.

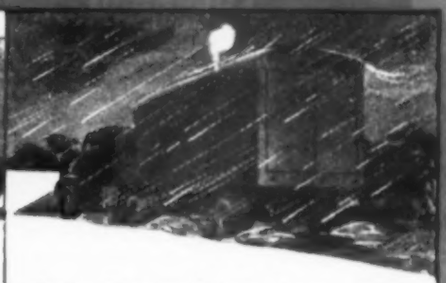
SOLVES THESE PROBLEMS



Flimsy, ordinary connections fray or break under severe road and weather conditions.



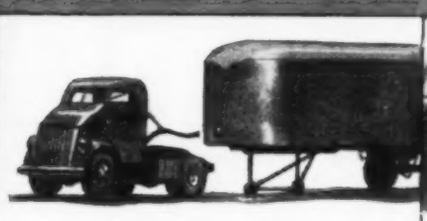
No snapping off by a "pull-away".



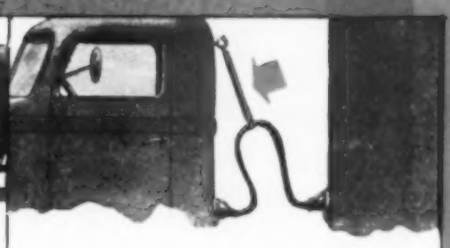
Trailer "blackouts" bring fines, delays, and accidents!

PROVIDES THESE ADVANTAGES

— Ruggedly constructed, weather-proof WARNER "Dreadnaughts" stand up under severest road and weather conditions.



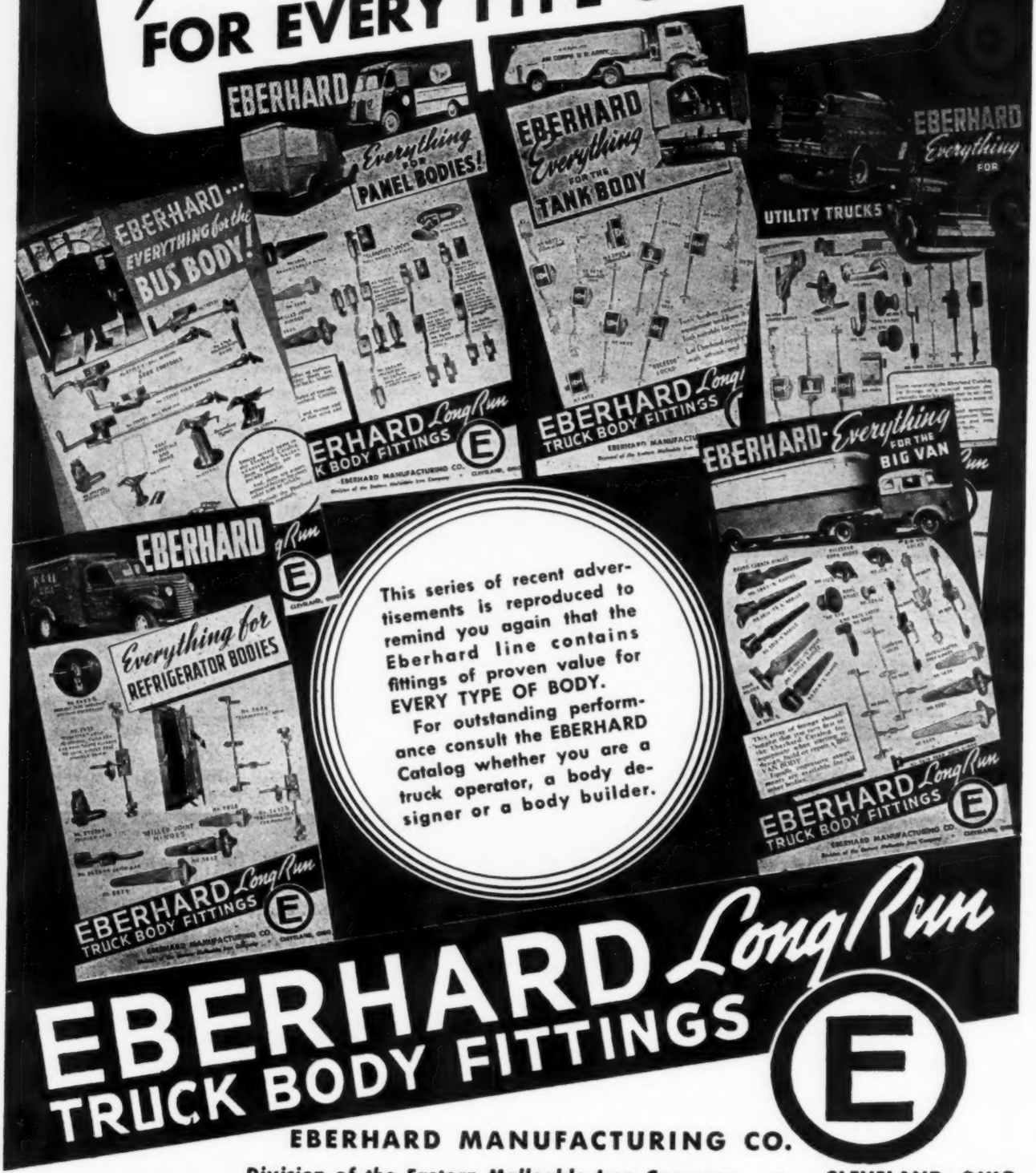
If driver fails to disconnect on drive-away, rugged cable pulls connector out of trailer socket — cover springs shut to prevent corrosion.



Heavy Cable Support Spring prevents cable from dropping in mud, water or sand.

A Product of WARNER ELECTRIC BRAKE MFG. CO., Beloit, Wisconsin

Yes! EBERHARD has EVERYTHING FOR EVERY TYPE OF BODY!


EBERHARD
Everything for PANEL BODIES!
EBERHARD Long Run
TRUCK BODY FITTINGS
EBERHARD... Everything for the BUS BODY!
EBERHARD Everything for the TANK BODY
EBERHARD Everything for UTILITY TRUCKS
EBERHARD Everything for REFRIGERATOR BODIES
EBERHARD Everything for the BIG VAN
This series of recent advertisements is reproduced to remind you again that the Eberhard line contains fittings of proven value for EVERY TYPE OF BODY.
For outstanding performance consult the EBERHARD Catalog whether you are a truck operator, a body designer or a body builder.

EBERHARD Long Run TRUCK BODY FITTINGS

EBERHARD MANUFACTURING CO.

Division of the Eastern Malleable Iron Company • CLEVELAND, OHIO

FOR UTMOST RELIABILITY IN THE HEART OF THE FUEL SYSTEM

AVAILABLE FROM THE AC WHOLESALER

Your AC Fuel Pumps give you such dependable service and long life because *highest quality is built in,* from blueprints to finished products. There is one sure way to protect that reliability and durability,—insist upon AC pumps and parts.

FOR REPLACEMENT—install new AC Fuel Pumps or Authorized Factory Rebuilt AC Fuel Pumps.

FOR REPAIRS—use AC Diaphragm or Parts Kits.

QUALITY FEATURES

- **Careful control of pressure and flow assuring correct fuel supply.**
- **Accurate hardening, precision machining of parts essential to long life.**
- **Accurate control of spring tensions and temper.**
- **High, and controlled, pin hardness.**
- **4-layer patented-impregnation diaphragms of special airplane cloth.**
- **Carefully finished rocker arm pads, located to center on cam.**
- **Split-hair rocker arm clearance and control of pad hardness.**
- **Uniform pull rod hardness at pin holes.**

AC

FUEL PUMPS

SEND FOR AC SHOP MANUALS

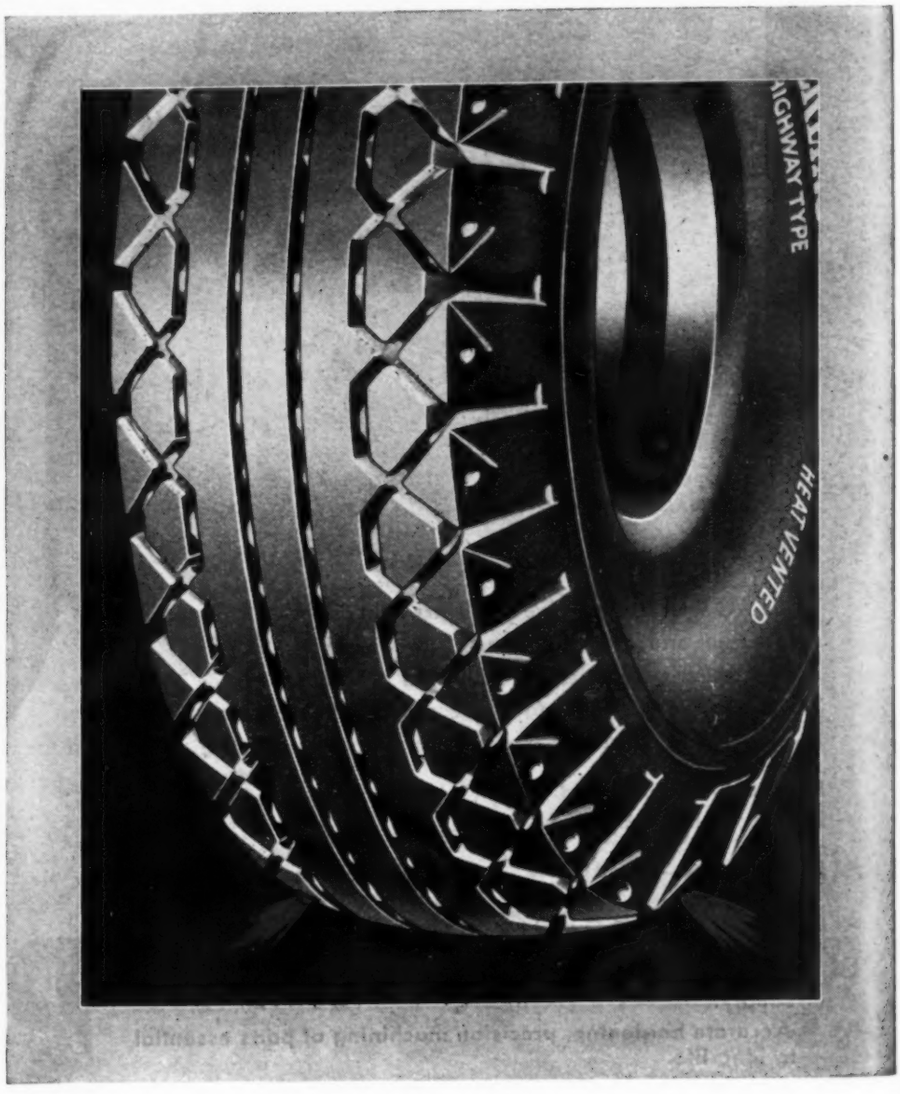
Field Service Department, AC Spark Plug Division, G. M. Corporation
910 Mott Foundation Building, Flint 3, Michigan

Gentlemen: Please send at once, no charge, the AC Shop Manuals checked:

☐ How to Service Spark Plugs ☐ HOW TO SERVICE FUEL PUMPS
☐ How to Service Spark Plug Cleaner ☐ How to Service Air Cleaners
☐ How to Service Oil Filters ☐ How to Service Speedometers
☐ How to Service Ammeters and other instruments

NAME_____
FIRM_____
STREET ADDRESS_____
CITY_____ STATE_____

Run



The Only Heat-Vented Truc

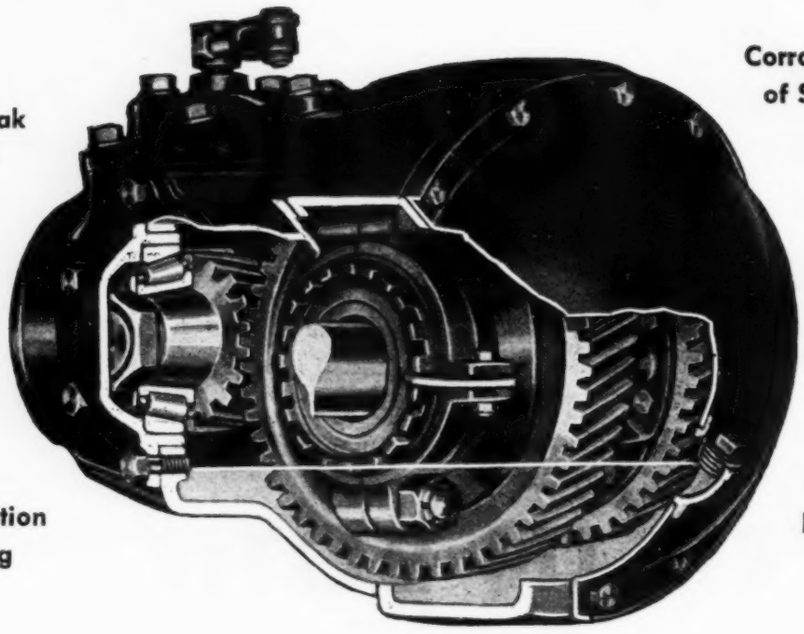
PROVED IN BOTH KINDS OF RUBBER!

The Exclusive Seiberling Heat-Vent effectively dissipates *internal friction heat*—the greatest single cause of premature tire failure! That is not a mere claim. It has been *proved*—on all types of trucks on all kinds of runs—not only in natural rubber but in hotter-running synthetic rubber. To you it means *more original mileage and more safe "recap mileage"* from every Seiberling tire you buy! Seiberling Rubber Company, Akron, Ohio; Toronto, Ontario, Canada.

SEIBERLING

Truck Tire

Why Gears Go Wrong:


Inadequate Protection at Peak Friction Points
Corrosion and Scoring of Smooth Surfaces
Scuffing Wear on Gear Teeth
Dangerous Gum and Sludge Deposits
Faulty Distribution and Oil Drag
High Heats . . . High Speeds . . . High Loads

GUARD AGAINST THESE COMMON DANGERS!

● Protect your gears with Mobilube Gear Oils. They fight the trouble-makers in your gear cases—help save "down time," repair costs.

Mobilube Gear Oils are highest quality straight mineral oils especially made for gear lubrication. They are exceptionally stable, sludge-resisting, non-foaming, straight mineral oils. Free of abrasives, soaps, fillers—they provide full protection against wear, rust, corrosion and scoring.

Your Socony-Vacuum Representative will recommend the *right* Mobilube Gear Oil to give your transmissions and differentials the fine protection they need. Ask him about our thorough Fleet Operator's Service.

SOCONY-VACUUM

SOCONY-VACUUM OIL COMPANY, INC. and Affiliates: Magnolia Petroleum Co., General Petroleum Corp. of California.

Use Mobilube Gear Oils

FOR FULL GEAR PROTECTION!

TUNE IN "INFORMATION PLEASE"—MONDAY EVENINGS, 9:30 E.S.T.—NBC

WHY DOES A TRUCK'S ORIGINAL FAN BELT LAST SO LONG?

TRY A
Dayton Belt
ON YOUR
SPEEDOMETER
The speedometer will tell you, for us, far more than we could begin to say for Dayton—the Original Equipment Belt.

You've probably noticed how a fan belt on a new truck seemed to last and last and last.

Have you also observed, after the truck's original belt was finally replaced, that often the replacement soon gave up?

When you consider how far a good belt will run, and that engine heat and oil are always present, it is easy to see why automotive engineers have selected Dayton Fan Belts as original equipment.

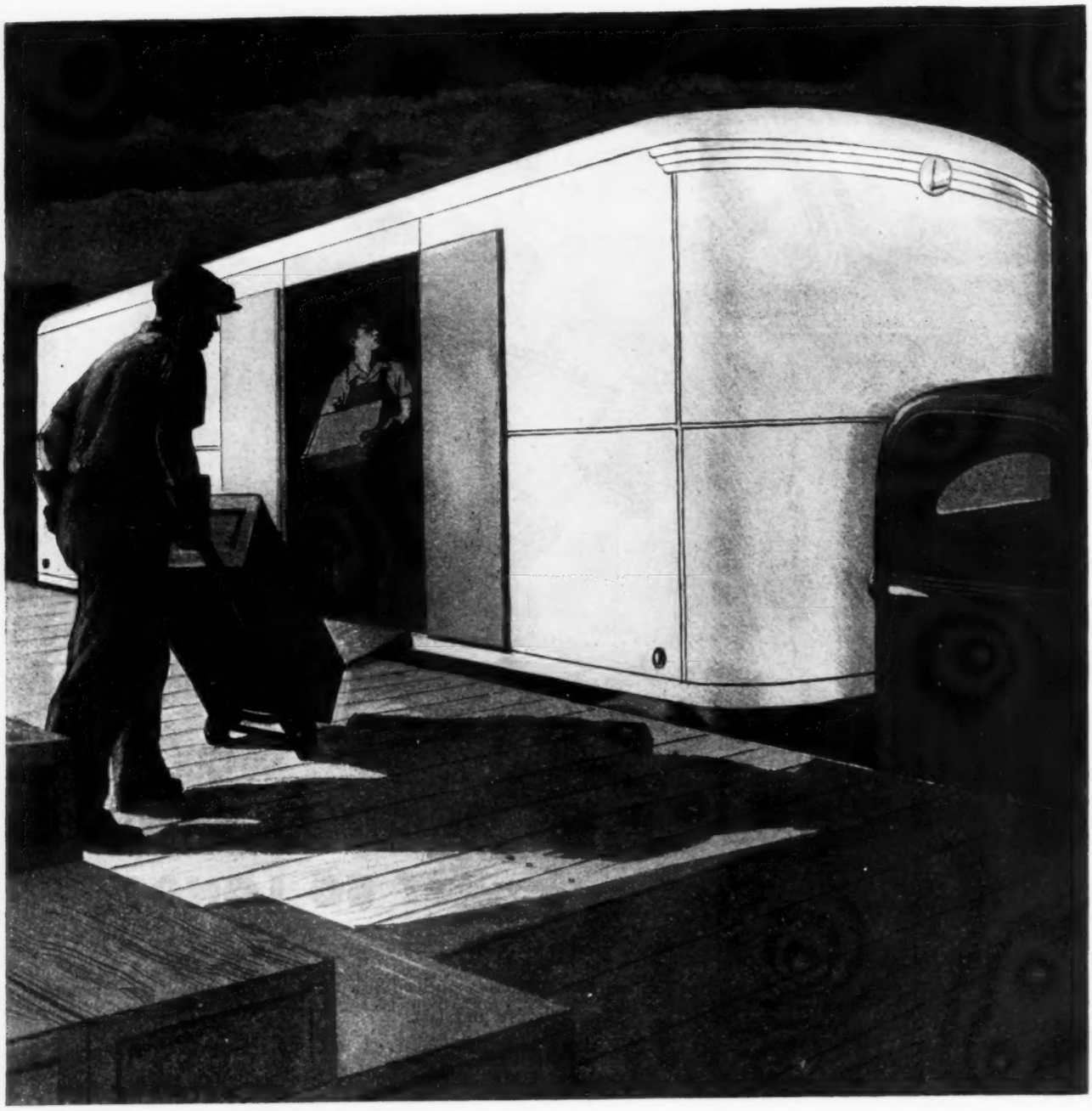
Try Dayton Fan Belts on your own trucks and see for yourself how a replacement can give the same surprisingly long service you get with original equipment.

Dayton Fan Belts are available through jobbers everywhere. Why not phone your jobber now. The Dayton Rubber Manufacturing Company, Dayton 1, Ohio.

TRUCK BELTS *by*

Dayton Rubber

THE MARK OF TECHNICAL EXCELLENCE IN NATURAL AND SYNTHETIC RUBBER



AMERICAN BANTAM "Trade Approved" Trailers are now on the road! Built into them are all the features that trailer men told us they wanted.

We will be in mass production as soon as sufficient materials are available. So keep your eye on American Bantam for "Trade Approved" Trailers... coming soon!

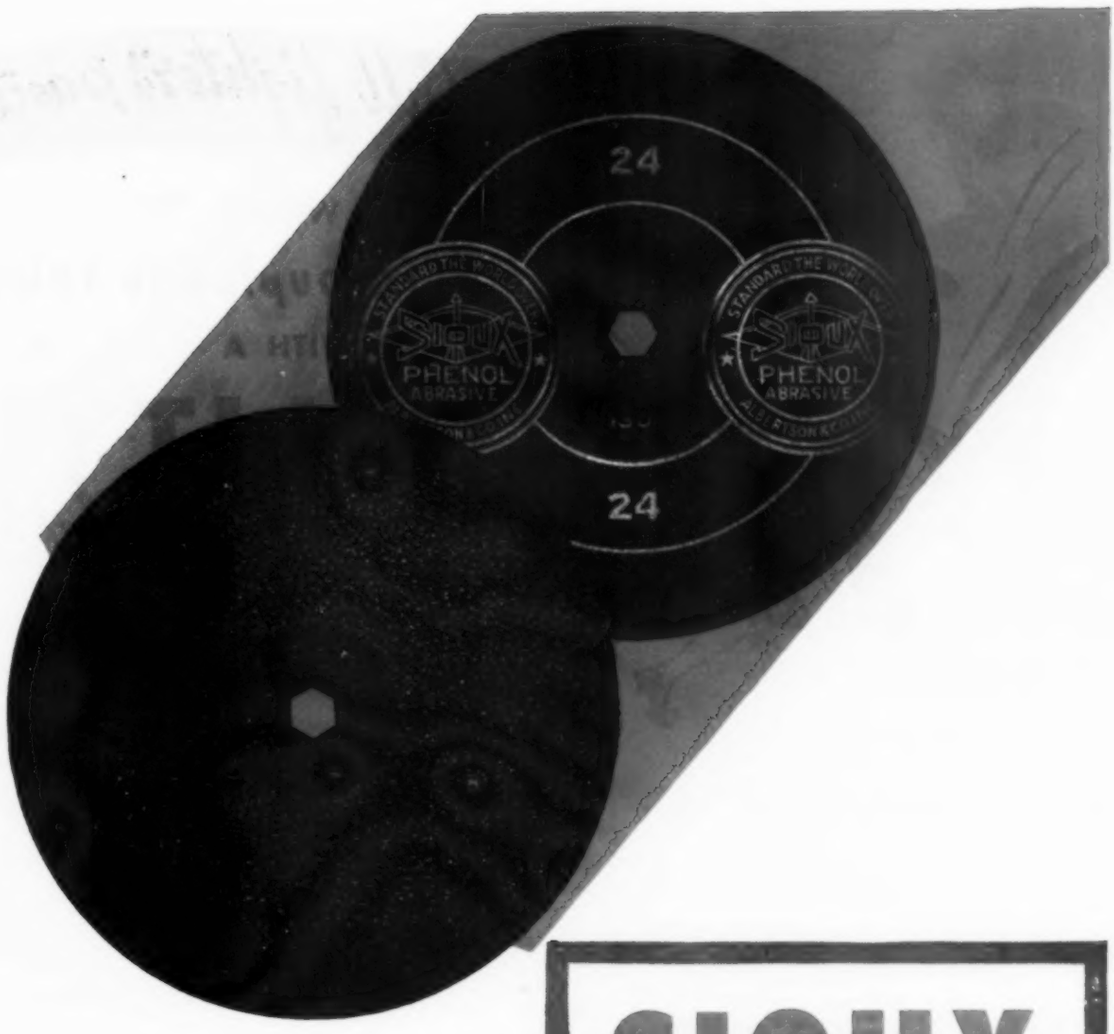
SUPERCARGO

BANTAM

TRAILERS

ARMY E NAVY

AMERICAN BANTAM CAR COMPANY • BUTLER, PENNA.



All-Purpose Sanding Disc

Tough sharp grains of tempered aluminum oxide are combined with heat resisting phenolic resin on a resin impregnated fibre backing to make this moisture-proof, fast-cutting, longer-life disc.

Even with continuous cutting action, this sanding disc will run cool and clean. It reduces the drudgery of sanding jobs and saves time. It has amazing flexibility for concave, convex and reverse curve sanding.

SIOUX
PHENOL ABRASIVE DISC

CUTS FASTER • LASTS LONGER

Ask Your Jobber's Salesman

STANDARD THE WORLD OVER

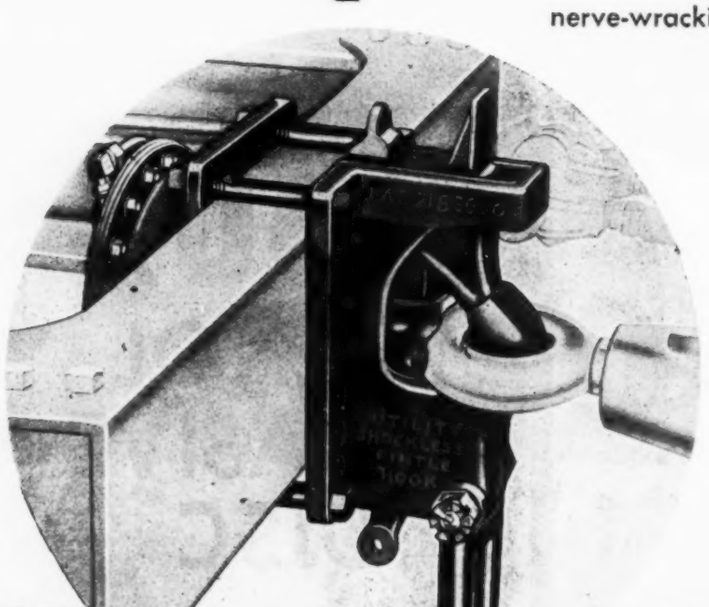
ALBERTSON & CO., INC. SIOUX CITY, IOWA, U. S. A.

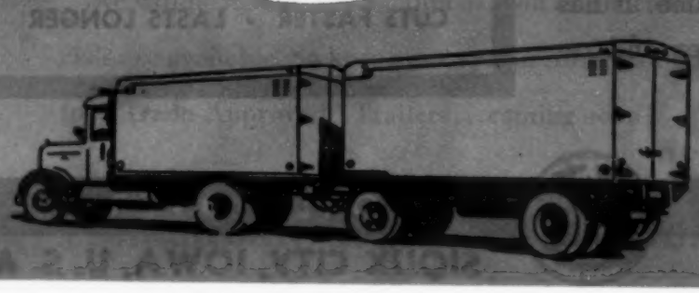
Tighter in a bull fighter's pants

WHEN
TRAILER is coupled to TRUCK
WITH A

UTILITY Shockless PINTLE HOOK

Air or vacuum pressure against the pole-eye eliminates all rattles, bangs and nerve-wracking shocks. Saves wear and reduces replacements of parts. Insures driver comfort and efficiency. May be used with any standard pole-eye.





UTILITY TRAILER MFG. CO.
LOS ANGELES
CALIFORNIA

Dealers write to
Box 3608 Terminal Annex
Los Angeles 54, Calif.

Extra Tough SERVICE REQUIRES *Extra Tough* SHOCK ABSORBERS

SO THEY INSTALLED "CLE-AIRS"

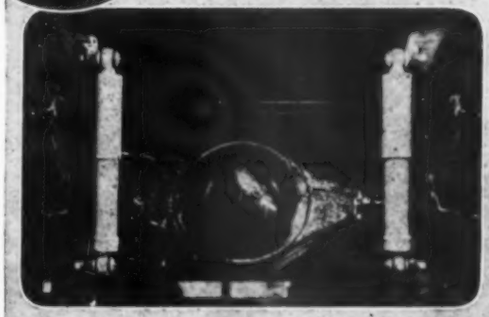
Newspaper delivery service is notoriously tough on vehicles. So the Call-Chronicle Newspapers of Allentown, Pa., to insure maximum protection, installed CLE-AIR spring control units, front and rear, on their Model W14 trucks. Here are a few of the reasons why they selected CLE-AIR units:

1. HEAVY DUTY TYPE. CLE-AIRS are not "passenger type shocks" adapted to fleets, but rugged units specifically designed for rigorous usage on trucks and buses. Built to aircraft tolerances, CLE-AIR units, when properly serviced, *last as long as the vehicle.*

2. EASY, LOW-COST MAINTENANCE. Checking the hydraulic fluid level every 15,000 to 20,000 miles is the only service normally required. This takes but a few seconds with the convenient filler plug. One operator reports his CLE-AIR units have gone 100,000 miles at a cost of only 15c apiece for oil.

3. SAFE, SMOOTH RIDE CONTROL. Identical in principle with our famed Aerol landing gear that safely land 80-ton aircraft, CLE-AIR units are dual-acting—hydraulic and pneumatic. This unique principle efficiently absorbs all shock and recoil, protecting the vehicle and producing a comfortable ride of unmatched smoothness.

Free booklet tells all the facts on CLE-AIR units. Ask for it!



A typical installation view of CLE-AIR units.

THE CLEVELAND PNEUMATIC TOOL CO.
AUTOMOTIVE DIVISION — CLEVELAND 5, OHIO

for Outstanding Performance ~~in 1945~~ SINCE 1915 !

McCREARY TIRES have been the choice of hundreds of *big* fleet operators for many years. This, in itself, is convincing evidence of longer mileage at lower cost.

Built to meet the highest standards of the fleet owner, McCreary's deliver *more* original miles before recapping . . . take *more* recaps per casing . . . and give *more* miles on every recap!

WHY THEY'RE BETTER

Better workmanship and materials account for this outstanding performance. The new McCreary Tire embodies a combination of the highest grades of natural and synthetic rubber, scientifically processed by the latest methods and with the most up-to-date machinery. Finest quality rayon cord is used.

Resiliency of the natural rubber in the carcass, added to the tough, abrasive qualities of the newly developed synthetic in the tread, results in a rugged, easy-riding, long-wearing tire with greater resistance to bruises.

SUPERIOR CONSTRUCTION

This careful selection of materials *plus* highly skilled workmanship . . . with close inspection at more than 40 points in processing . . . are typical reasons why McCreary Tires give you more trouble-free miles for every dollar.

Our factory expansion program is completed and production of new McCreary Tires is now more than double! If your dealer hasn't yet been able to fill your order, keep in touch with him. For the best buy in tires, get McCreary's!

McCREARY TIRE AND RUBBER CO. • INDIANA, PA.

Serving six states on schedule
... *with* DIAMOND T *reliability*

HITCH a box-car size trailer to a Diamond T 509, and you have a real cost-cutting combination for store-door furniture delivery. Here, at the great Huey Long Bridge over the Mississippi, stands one of the newest of the twenty big rigs that cover six states for the New Orleans Furniture Mfg. Co.

"Equipment that exactly matches our requirements," reports this progressive manufacturer, and adds that Diamond T is their choice for the future. Supplying Texas, Louisiana, Mississippi, Alabama, Georgia and Florida dealers, Diamond T has earned their preference with consistent reliability on long routes and tight schedules.

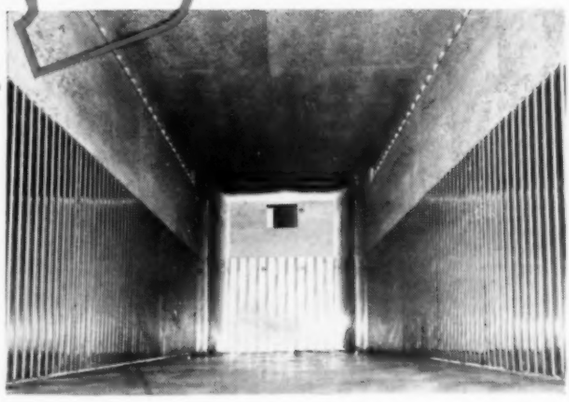
Diamond T research and pioneering continue. New and improved commercial trucks are now in production in all sizes from 1½ to 10 tons capacity. *See your Diamond T dealer.*

DIAMOND T MOTOR CAR COMPANY, CHICAGO
Established 1905

DIAMOND T TRUCKS

PAID

Made largely of Alcoa Aluminum, this 34-foot refrigerated semi-trailer, one of an initial order of 38, was built for Pacific Intermountain Express by Brown Industries of Spokane, Washington.



Its added earnings payoff its entire cost in a year and a half

Trailer builder and fleet operator pooled their experience to produce this unit. The one contributed knowledge gained in his many years of working with Alcoa Aluminum on all types of equipment. The other called on the wealth of experience gained through millions of miles of truck operation between the Pacific Coast and Chicago and St. Louis.

Thus they produced a semi-trailer which, though light enough to become a bonus earner, is also tough enough to stand up under the grueling grind of transcontinental fleet operation. Because the payoff is the pay load, operators everywhere have found that their earnings go up as body weights are reduced with the help of Alcoa Aluminum. Your builder can supply you with lighter weight aluminum equipment. ALUMINUM COMPANY OF AMERICA, 1974 Gulf Building, Pittsburgh 19, Pa.

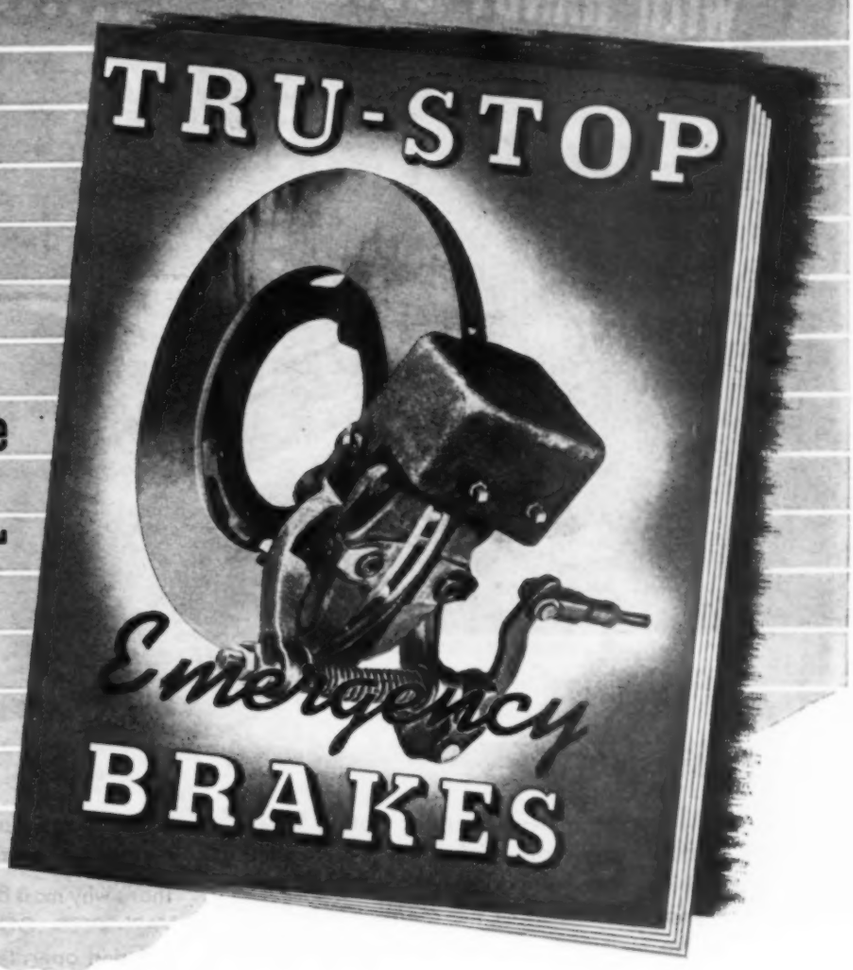
ALCOA FIRST IN ALUMINUM

ALCOA ALUMINUM

Before Buying New Equipment

READ THIS BOOKLET

A File Size Booklet of Information About the SAFER—more ECONOMICAL Emergency Brake



"Equipped with Tru-Stop Emergency Brakes" means a better, safer truck or bus. This 12-page booklet tells you why. When you read it, you will understand why fleet owners who have once used TRU-STOPS make sure that new equipment is TRU-STOP equipped. For your copy of this booklet, write our Detroit office.

ACCO

6-235 General Motors Bldg., Detroit 2 • 695 Bryant Street, San Francisco 7 • Bridgeport, Conn.

AUTOMOTIVE AND AIRCRAFT DIVISION
AMERICAN CHAIN & CABLE

TRADE MARK

In Business for Your Safety

More haste and Greater economy in Less speed with HANDY GOVERNOR POSITIVE CONTROL

SAVE... 10% on FUEL COSTS
30% on BRAKE MAINTENANCE
35% on ACCIDENT COSTS

PLUS.. Savings on TIRES, OIL, INSURANCE and GENERAL MAINTENANCE

When a large fleet operator stated: "Every governor on trucks involved in five head-on collisions had been tampered with"—he was hitting at the heart of the greatest contributor to the high cost of operation in the trucking industry—SPEED.

Another operator, upon examining a truck that had been driven 180,000 miles without an accident or a bad report, found the governor sealed and functioning properly. Ordinary servicing had maintained perfect performance—because it had been operated at an economical speed.

Such reports make sense—they're pure logic and they prove themselves in dollars and cents.

That's why most fleet operators give the HANDY VARI-SPEED GOVERNOR so much credit for reducing operational costs. They know that the Handy patented cam, which assures positive action, gives the best governor performance. The all-aluminum body, stainless steel shaft, and needle type roller bearings assure continual maximum performance.

The value of Handy is an accepted fact because Handy sells more Velocity Type Governors than all other governor manufacturers combined.

2020

KING-SEELEY CORPORATION
ANN ARBOR MICHIGAN

PLANTS IN
ANN ARBOR
GRAND RAPIDS
YPSILANTI

NEW IMPROVED SUPER-LUBRICANT

FOR TOUGHEST LUBRICATION JOBS IN CARS, TRUCKS, TRACTORS AND STATIONARY ENGINES

- Resists Formation of Sludge, Lacquer, Carbon
- Removes Hard Carbon
- Stronger Protective Film
- Non-Corrosive—Safe
- Keeps Piston Rings Free
- Adds Power, Saves Fuel, Saves Wear and Shut-down Time

Accepted by Leading Engine Manufacturers as a Superior Lubricant.

LION Naturalube D.H.D. OIL

Naturalube D.H.D. is made from a rare and basically different crude oil which imparts to the finished product a stronger protective film . . . greater adhesiveness and penetrativeness . . . and ability to remove hard carbon deposits. By special processing, Naturalube D.H.D. is reinforced against the deteriorating effects of extreme heat and oxidation. Because of D.H.D.'s resistance to formation of deposits of sludge and lacquer, engines are cleaner; rings and valves operate freely for longer periods; filters, screens and oil lines function normally. There is no hard-carbon scuffing; general engine performance is greatly improved; operating and maintenance costs are lower; shut-down time is minimized. D.H.D. is non-corrosive—safe. It saves wear, adds power and saves fuel. Try D.H.D. —Your money back if you don't believe it to be the best oil you have ever used.

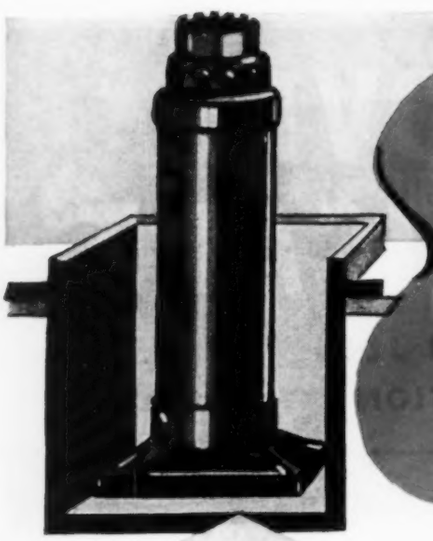
**For normal service where D.H.D. is not required, use Naturalube Motor Oil (not so heavily reinforced.)*

POSITIVE MONEY-BACK GUARANTEE

For further information about Naturalube Oils, see the local Naturalube Distributor or write direct to Lion Oil Company, El Dorado, Arkansas.

LION PETROLEUM PRODUCTS

LION OIL COMPANY EL DORADO, ARKANSAS



You Save the Jack— WHEN

YOUR TRUCKS ARE EQUIPPED WITH

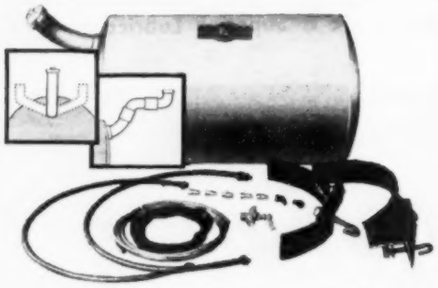
PRIOR *Safety* TANK and Tool Chest Sets

Special Jack Well

The illustration above shows how a hydraulic jack is kept upright in the special jack well in the Prior Tool Chest. This well may be spotted in the chest to clear all parts of the chassis assembly. Well for 12-ton is standard equipment, 15-ton will be supplied on request at no extra cost. A special battery well is also available (at small extra cost).

The Prior Tool Chest provides a safe place to keep your hydraulic jack and emergency tools. It can be locked securely, and is quickly and easily accessible when you need to use either jack or tools. The chest is bolted to the heavy angle iron across pieces of the special curved angle iron tank suspension unit. The sturdy cover of the chest has a 4-way rough tread design that gives secure footing when used as a catwalk, and adds to the appearance of the set.

Prior Safety Tanks are built for heavy duty. They're pilfer proof; safety fused to guard against explosion in event of fire. A ball check in the vented filler cap prevents leakage of fuel, should the tank be overturned.



The special end-fill safety tank, illustrated above, has an adjustable filler tube, which makes it possible to fit it to either side of any stake-body truck or bus. The filler tube also may be lengthened. This 18-inch tank comes complete with suspension brackets down to the last nut.

When Prior Safety Tank pairs are used (without the tool chest), a special catwalk, with a 4-way rough tread design is available for fitting between the cross-members of the suspension unit.

PATENTED

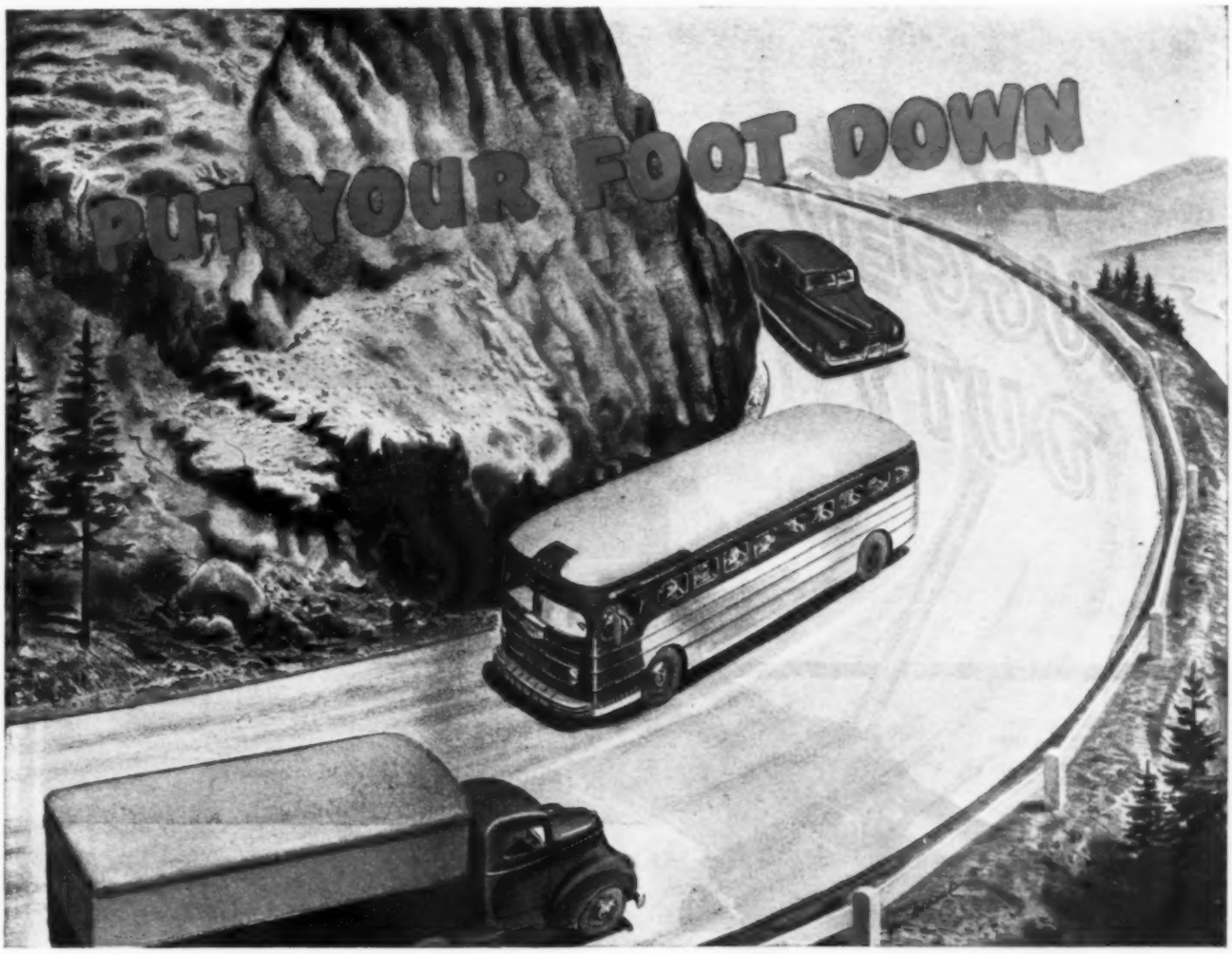
ELECTRIC GAUGE

An electric fuel gauge, with dash mounted indicator, is available for either single tanks or tank sets. This is optional equipment at extra cost.

PRIOR *Safety* TANKS
PROTECT CARGO EQUIPMENT AND POCKETBOOK

WRITE OR WIRE FOR NAME OF NEAREST DEALER

PRIOR PRODUCTS • DALLAS, TEXAS • CLINTON, ILLINOIS



GET FULL-RANGE DRIVING CONTROL

● Good driving takes good brakes . . . you *control* your truck with them. And you use them for *slow-downs* at least six times to every "stop."

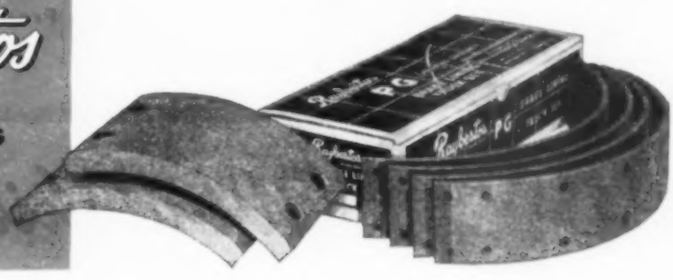
Get easy, powerful braking action every time you put your foot down. Raybestos lining and blocks give you *more* than smooth, quick stops. They give you *full-range* driving control for slow-downs . . . instant command of your speed at all times.

Only Raybestos makes all the seven types of lining necessary for all makes, models, weights and speed conditions. With Raybestos, you can be sure of the right brake materials for every installation —PG Truck Sets, drilled and countersunk for light and medium trucks; Heavy Duty Blocks for buses and bigger trucks. See your Raybestos jobber.

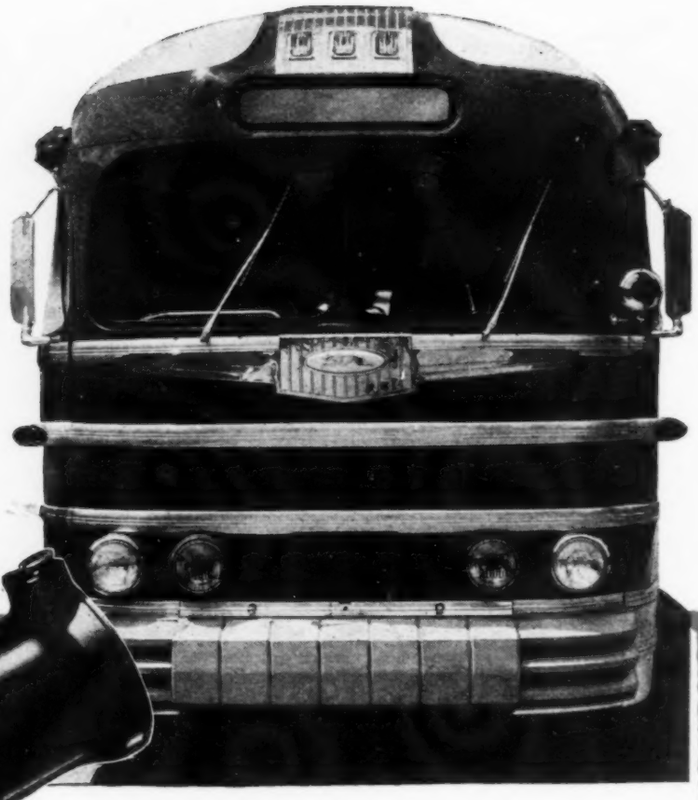
THE RAYBESTOS DIVISION of Raybestos-Manhattan, Inc.
Bridgeport, Connecticut

PG PROVING GROUND TESTED
BRAKE LINING • BRAKE BLOCKS
CLUTCH FACINGS • FAN BELTS • HOSE
for Cars, Trucks, Buses and Tractors

RELINE WITH
Raybestos
AMERICA'S BIGGEST SELLING
BRAKE LINING



for RUGGED DUTY

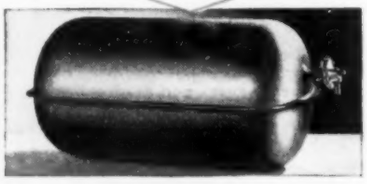


Built especially for trucks and buses with air brakes or other air supply, the *new* Trico Windshield Wiper AIR PRESSURE Motor is a powerful, heavy duty unit for continuous operation under the severest conditions. Available either with complete wiper and linkage for new installations . . . or as motor alone for replacements.

Trico Products Corporation, Buffalo 3, N. Y.

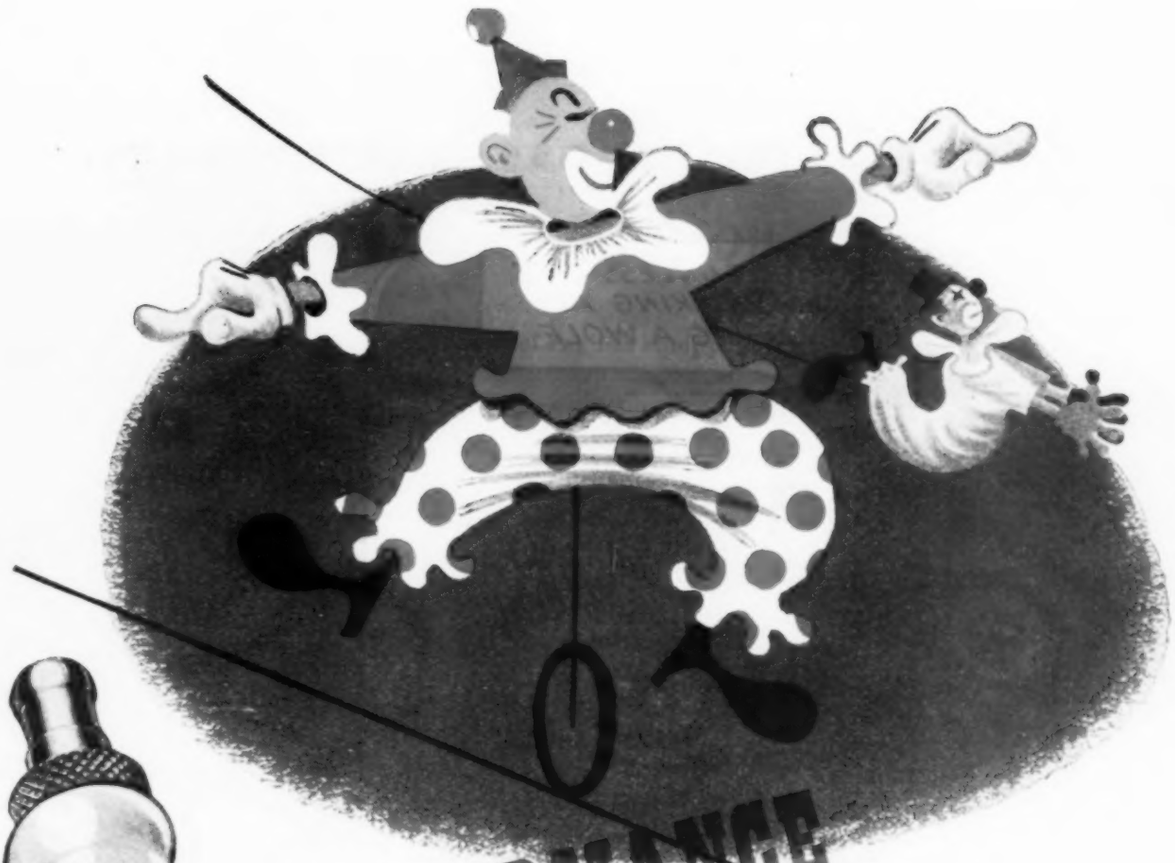
For Trucks or Buses Without Air Pressure

The *new* Trico VACUUM motor gives more powerful action than ever before. Continuous action under load is provided by the auxillary Reservac, now available in new economy capacity.



TRICO

Windshield Wipers



PERFORMANCE
as great as the name

WHETHER IT'S A LONG OR A SHORT HAUL, you'll get the kind of performance you expect from a name like Edison. Edison's built-in "SPUN-ON" Leakproof Gasket insures delivery to the engine of all the power the cylinder is capable of producing. Gas goes where it will do a job . . . not out the exhaust-pipe.

Ignition trouble bothering you? Take advantage of Edison-Splitdorf's *Transportation Service Department*. They'll be glad to make *your* problems *their* problems . . . without cost to you.

See your Edison jobber for spark plugs and all other *quality* products.

Edison
SPARK PLUGS

EDISON-SPLITDORF CORPORATION, WEST ORANGE, NEW JERSEY

You were wrong

THE TIME YOU LET THE GAS TANK OVERFLOW

...but you're right WITH PACKARD CABLE

You'll always make a hit with the man who pays the bills when you replace worn-out or inefficient spark plug wires with Packard Four-Forty ignition cable. That's because Packard Four-Forty cuts operating expenses by delivering more miles per replacement.

Packard Four-Forty ignition cable is made with an especially tough protective sheath for extra long life—for extra resistance to heat, cold, oil, moisture and corona. It delivers the juice for quick starts and a hot spark regardless of temperature or humidity.

You're following the lead of most outstanding service stations, fleet maintenance men and garages when you make Packard Four-Forty your replacement standard. It's a recognized fact in motor circles everywhere—"You're *right* with Packard cable!"

CERTIFIED RE-WIRING SERVICE

Packard

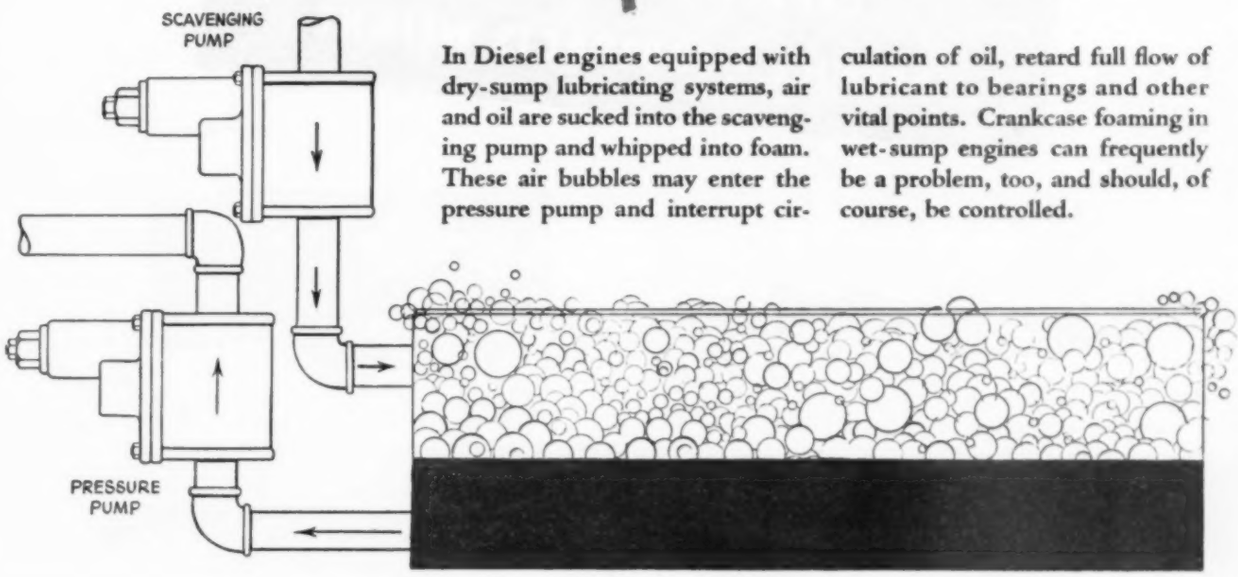
REG. U.S. PAT. OFF. TRADE-MARK

PACKARD ELECTRIC DIVISION
GENERAL MOTORS CORPORATION
WARREN, OHIO

FOREMOST BUILDER OF AUTOMOTIVE AND AVIATION WIRING

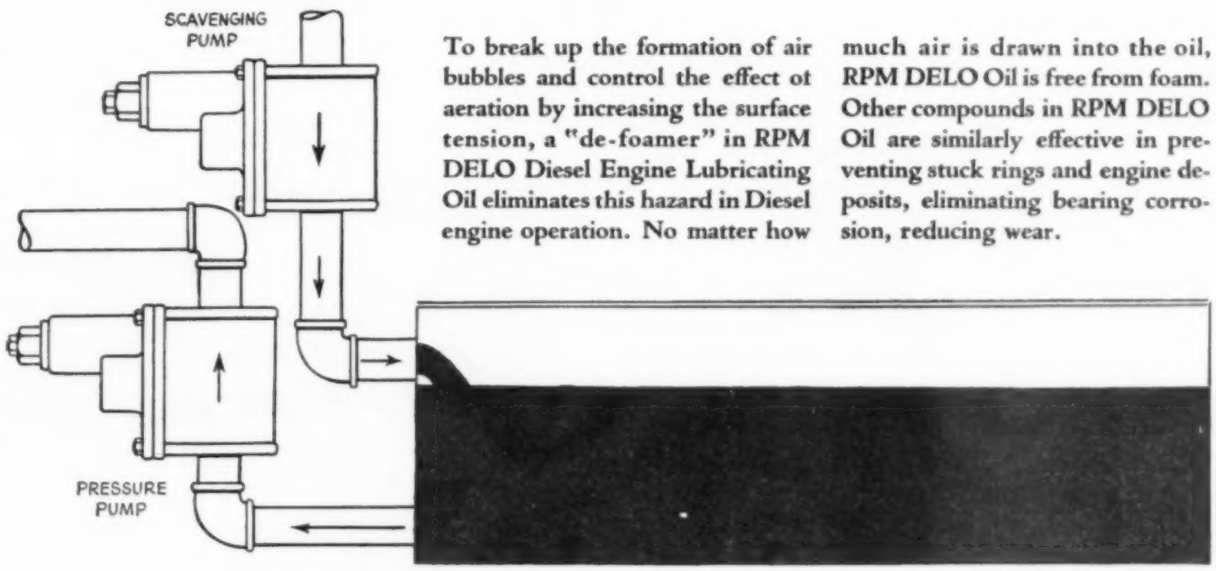
Diesel Engine DANGER points

AIR BUBBLES ENDANGER OIL CIRCULATION



In Diesel engines equipped with dry-sump lubricating systems, air and oil are sucked into the scavenging pump and whipped into foam. These air bubbles may enter the pressure pump and interrupt circulation of oil, retard full flow of lubricant to bearings and other vital points. Crankcase foaming in wet-sump engines can frequently be a problem, too, and should, of course, be controlled.

RPM DELO OIL PREVENTS CRANKCASE FOAMING



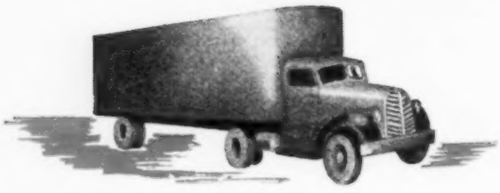
To break up the formation of air bubbles and control the effect ot aeration by increasing the surface tension, a "de-foamer" in RPM DELO Diesel Engine Lubricating Oil eliminates this hazard in Diesel engine operation. No matter how much air is drawn into the oil, RPM DELO Oil is free from foam. Other compounds in RPM DELO Oil are similarly effective in preventing stuck rings and engine deposits, eliminating bearing corrosion, reducing wear.

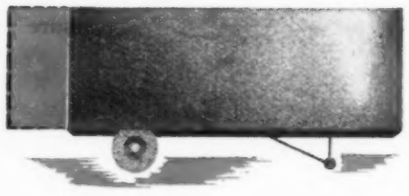
To match the fine performance of RPM DELO OIL, use these equally efficient companion products from the same famous "RPM" line – RPM HEAVY DUTY MOTOR OIL – RPM COMPOUNDED MOTOR OIL – RPM GEAR OILS AND LUBRICANTS – RPM GREASES. For additional information or name of your distributor, write any of the companies below:

STANDARD OF CALIFORNIA · 225 Bush St., San Francisco 20, California
THE CALIFORNIA COMPANY · 17th and Stout Streets, Denver 1, Colorado
STANDARD OIL COMPANY OF TEXAS · El Paso, Texas
THE CALIFORNIA OIL COMPANY · 30 Rockefeller Plaza, New York 20

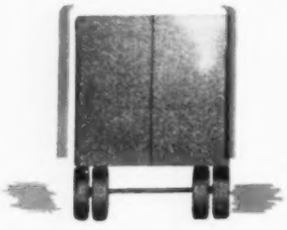
RPM DELO
DIESEL ENGINE LUBRICATING OIL

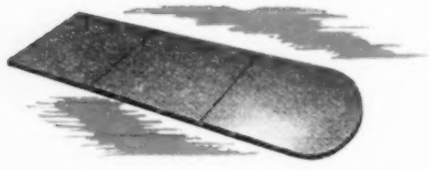
Plymetl ADDS LOAD CAPACITY - MULTIPLIES SERVICE - SUBTRACTS WEIGHT



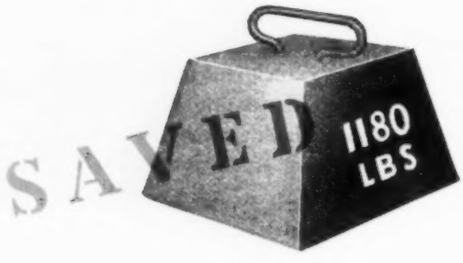


Bedell Trailer Sales rebuilt this trailer with ¼" Plymetl . . . The length was increased 24" . . . and





the width increased 6" . . . a heavier axle was installed . . . and a double floor . . . and the



original weight decreased 1180 lbs . . . Here it is.

HASKELITE

MANUFACTURING CORPORATION

Dept. TF-2, Grand Rapids 2, Mich.

The new bulletin, "Plan With Plymetl," tells you what Plymetl is . . . what it does . . . and how it does it. Learn how you can benefit through the use of Plymetl. Write for your free copy today.

NEW YORK DETROIT CHICAGO CLEVELAND ST. LOUIS PHILADELPHIA

CANADA: Railway & Power Engineering Corporation, Ltd.

"SOME SANDER!

Never stalls... and is it easy to handle!"

Thor SUPER POWERED FOR DEPENDABLE SERVICE

PORTABLE ELECTRIC SANDER

On your toughest jobs a versatile Thor Sander —with Thor abrasive discs, wire cup brushes or cup grinding wheels—removes paint, rust and scale; grinds off welds, rivets and bolts; smoothes any wood or metal surface. Powered with the famous Thor motor that has made Thor tools standard on factory production lines for years, these sanders turn out body and fender jobs faster and cleaner. This *controlled* power is easy to handle because of compact design and perfect balance . . . even unskilled workers get the smooth finishes that mean a slick job. What's more, Thor sanders are built to last . . . with full anti-friction bearing construction, over-size pitch gears, patented extra-efficient cooling and other Thor features that mean long life and low maintenance. For the right tool for your shop, call your nearby Thor jobber.

INDEPENDENT PNEUMATIC TOOL COMPANY
600 W. Jackson Boulevard, Chicago 6, Illinois

Birmingham Boston Buffalo Cleveland Detroit Los Angeles
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AIR TOOLS, TOO!

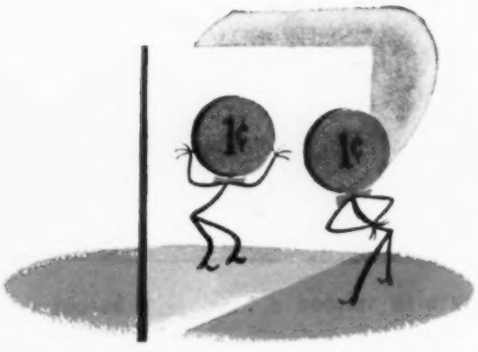
If you have a 3 H.P. compressor or larger, investigate the savings in time and money you can make with the new Thor Multi-Matic air Drills, Grinders, Polishers and Sanders. Ask your jobber or write for catalog No. 95.

Thor PORTABLE POWER TOOLS

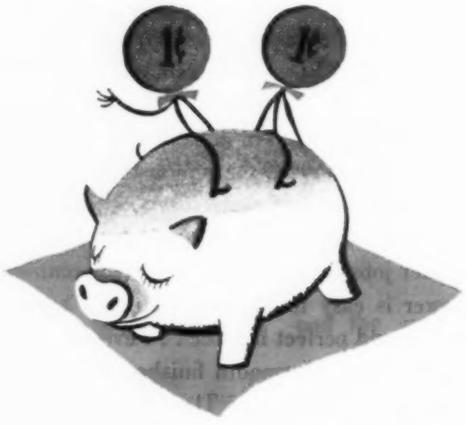
PNEUMATIC TOOLS • UNIVERSAL AND HIGH FREQUENCY ELECTRIC TOOLS • MINING AND CONTRACTORS TOOLS

The very best *oil takes less than 2¢ out of every operating-cost dollar . . . but look what 2¢ can do!*

1. Keep pistons, *valves, rings and other vital parts cleaner by removing hard carbon.*



2. Keep a tough, *heat-absorbing, pressure-absorbing film between moving parts.**



3. — and so *give you substantial savings* in down-time, maintenance and repair costs!*

*Prove it in your own equipment

Macmillan Ring-Free motor oil IS different. Because it IS a better oil, we invite you to test it against any other brand. We'll gladly help you arrange a dollars-and-cents test in your own equipment. Write, wire or phone the nearest Macmillan office. MACMILLAN PETROLEUM CORPORATION. 50 W. 50th St., New York 20 • 624 S. Michigan Avenue, Chicago 5 530 W. Sixth St., Los Angeles 14.

ASK FOR MACMILLAN RING-FREE MOTOR OIL

THE LOW-MAINTENANCE OIL

HIGH, HIGH FILM STRENGTH! LOW, LOW ENGINE DEPOSITS! CLEANS AS IT LUBRICATES!

Here it is

Now—EVERY-TRIP Alinement Check-ups at a Glance!

If an *occasional* alinement check-up helps keep you from paving streets and roads with your rubber, then an *EVERY-TRIP Check-up* is that much better—and now you can have Every-trip Check-up as easily as glancing at your watch.

As you see in the picture, the gauge on this easy, simple Bear Wheel Aliner is eye-high for the driver. All he does is roll on, glance at the dial, and that's all there is to the Every-trip Check-up.

And remember, this isn't an ordinary alinement check, but the only absolutely accurate toe-in and toe-out check that can be made! For this is the only check made under actual driving conditions with and without load—the only front and rear wheel test where the vehicle is IN MOTION!

Make a Deal With Your Bear Service Man

Your nearby Bear Service Man will be glad to arrange for your vehicles to roll over his Bear Wheel Aliner for Every-trip Check-up. Or, get UP-TO-DOUBLE tire mileage with Bear Aliners of your own, installed at your terminal points. Write today for complete details to BEAR MFG. CO., Dep't. CCJ, Rock Island, Ill.

Dial on drive-over side is easily visible for the driver. It shows exact condition of alinement and indicates amount of side-scuff per mile.

Heart of Tire and Vehicle Conservation Is

BEAR ***Wheel Alinement and Dy-Namic Balancing***

1618

WHEELS . . .

For the New South

TRAILMOBILE
TRUCK TRAILERS

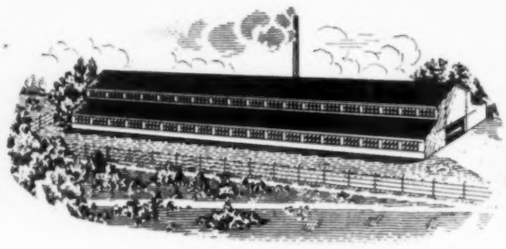
HEIL
TANKS

HERCULES
DUMP BODIES

Parts - Accessories

•

The measure of prosperity in the modern era is transportation . . . and a vital factor in the Industrial expansion of the New South is the ease with which Southern markets can be reached by highway transport. Carley Trailer & Equipment Company is giving wheels to the new South by providing the finest trucking equipment, plus truck and trailer service second to none in the Nation, conveniently located in Atlanta, the Gateway to the South. Carley invites all Southern truckers to make Atlanta their Trailer Service center and use the facilities of our fine plant and its staff of service experts.



CARLEY
TRAILER & EQUIPMENT CO.

Main Office and Plant: College Park (Greater Atlanta) Georgia
SWAINSBORO ALBANY

The Most Complete Trailer Service South

SPEED WASH . . . has a back and reservoir of steel. The handle is lightweight electric welded steel tube 5 feet long, with brush socket at one end and standard hose-connection at the other. Brush head, 11 inches wide, is detachable and replaceable at low cost. Tufts of highest quality horsehair are drawn into the block by hand with rust-proof wire. **$9.45** POST PAID IF CASH ACCOMPANIES ORDER

Here is the One Tool That Takes Troubles Out of Truck Washing

You can't appreciate how much time and effort can be saved with a Speed Wash fountain brush until you actually put it to work on your own trucks. So see for yourself how easily the Speed Wash works. See how it feeds clean, fresh water from a standard hose through the handle and brush! See how it soaks, scrubs, and rinses in one simple operation! See how it saves the finish by constantly flushing grit out of the brush! Try Speed Wash for ten days. If it doesn't take the drudgery out of truck washing--if it doesn't cut washing work in half--return it for a full refund of your money. Mail your order today to Speed Wash Division, Milwaukee Dustless Brush Company.

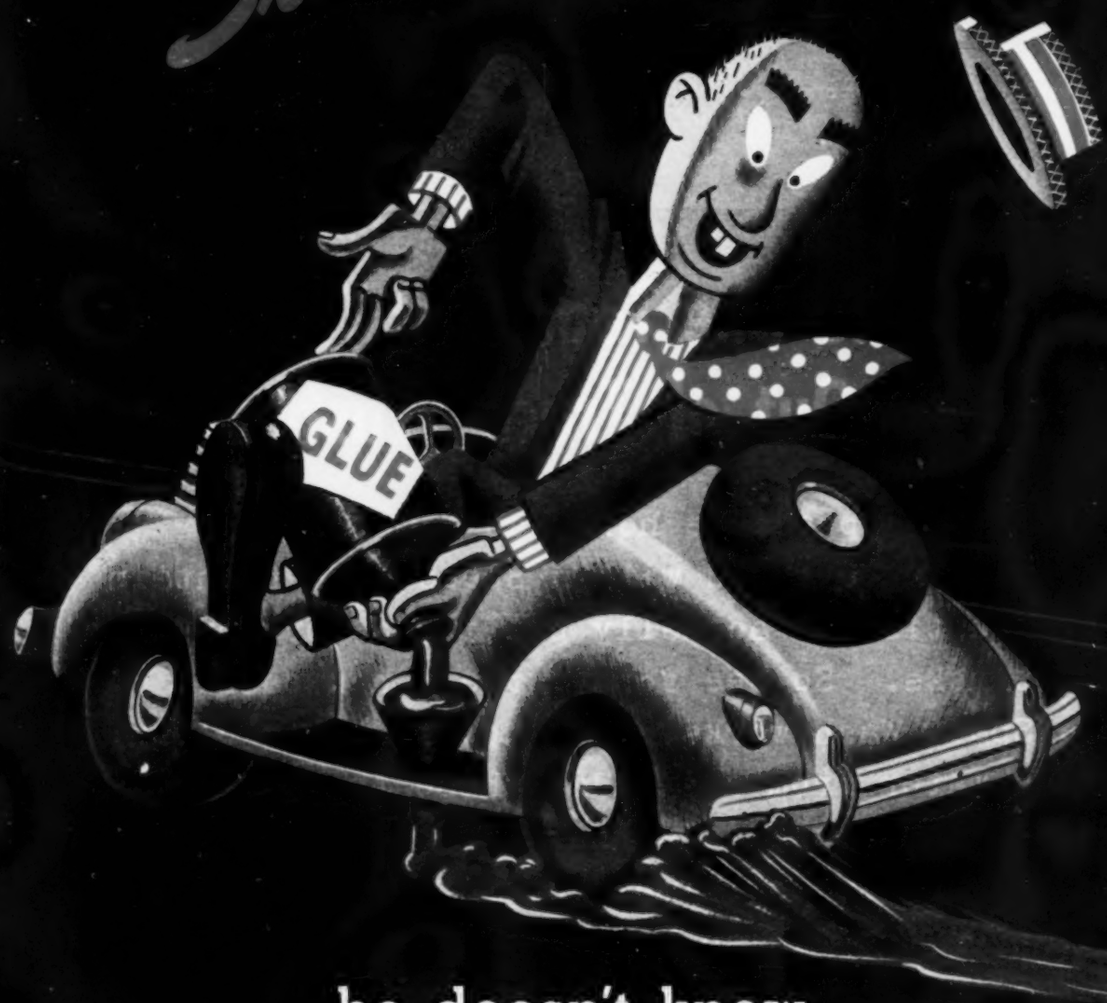
M D

"Dustless"—"Speed Sweep"—"Speed Wash" Brushes

MILWAUKEE DUSTLESS BRUSH COMPANY

528 North 22nd Street • Milwaukee 3, Wisconsin

Skid uses glue because



he doesn't know

GRAFILD
BRAKE LININGS

will stop 'em!

But *you* can give your customers real brake service by sticking to GRAFILD. There's no surer way to end slipshod, slap happy stops. GRAFILD stops are noiseless and jostle-free. Get in line—reline with GRAFILD.

WORLD BESTOS CORP.
PATERSON • NEW JERSEY

FEDERALS HAVE WON

By Costing Less to Run!

Building trucks for the Armed Services, Federal was cited four times for its excellence in war production.

Moving more for less . . . Doing it better and faster, at lower cost! That's your job as truck operator or fleet owner—just as it's our job to supply the kind of heavy duty truck transportation that stands up to the toughest assignments without a whimper.

Federal's larger, heavier duty trucks—backed by 36 consecutive years of truck manufacturing exclusively—are engineered and built to match individual work needs.

That's why you can count on Federal Trucks to stand up to the hard-boiled demands of the most exacting trucking problems—show you maximum economy of operation, greater reliability, more consistent performance. They're designed for individual job requirements—with all-truck construction, ample horsepower, larger load capacities to insure extra savings. It will pay you to consult your nearest Federal Dealer today.

FEDERAL MOTOR TRUCK CO. • DETROIT 9, MICHIGAN

FEDERAL TRUCKS

Since 1910 . . . Known in Every Country—Sold on Every Continent

FOR many, many years, Spicer Axles and Propeller Shafts have been standard equipment in Studebaker automobiles. The splendid service record of these Spicer products dictated their use in the dashing new Studebakers now appearing on America's highways. Each new Studebaker gives added prestige to Spicer engineering and manufacturing skill . . . for 42 years the standard of excellence in the automotive power transmission field.

Spicer Manufacturing Corporation, Toledo 1, Ohio

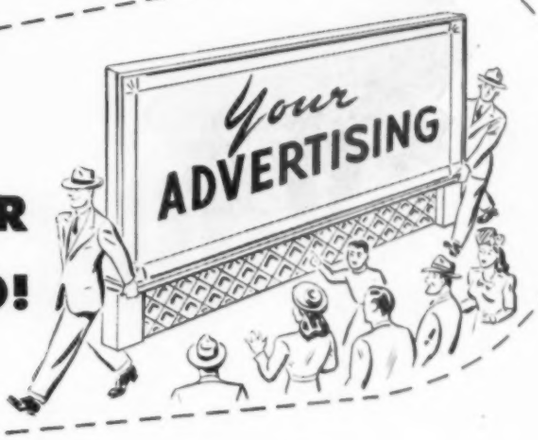
The new Studebaker is equipped with Spicer Axles and Propeller Shafts.

42 YEARS OF
Spicer
SERVICE

Transmissions, Torque Converters, Clutches, Passenger Car Axles, Universal Joints, Parish Frames, Stampings. Spicer "Brown-Lipe" Gear Boxes

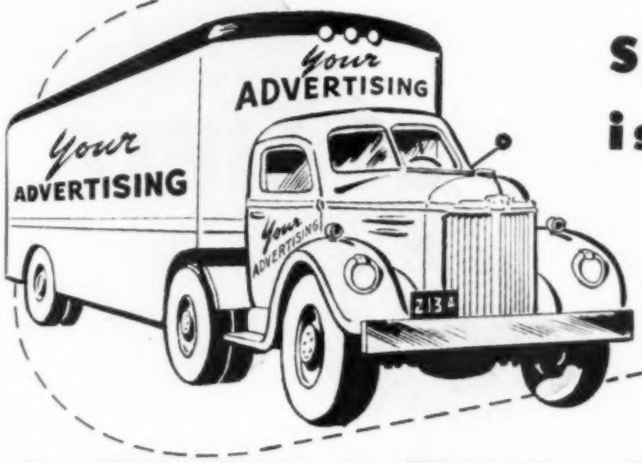
YOU WOULD HAVE TO PAY FOR THIS ADVERTISING!

(If you wanted it)



YOU WOULD PAY FOR THIS ADVERTISING TOO!

(If you could get it)



Space on your trucks is FREE . . . USE IT . . .

(And let your trucks pay for themselves in the process)

with

MEYERCORD TRUCK DECALS

Thousands of new trucks will soon be added to America's fleets. They offer acres of advertising space . . . *cost free!* Fleet-owners who sell space on their trucks have established annual advertising values up to $240.00 for side panels alone. The same space on your trucks is worth as much to you. Cab doors, roofs, backs and visors offer additional value too. Use these areas with Meyercord's durable, washable and weather-tested Truck Decals and help your trucks pay for themselves! Trademarks, lettering, product illustrations, all can be reproduced in any colors, size or design. Over-night application saves paint-shop delays . . . and Meyercord Decals are economical for a dozen trucks or a thousand. Send for full details. Address inquiries to Dept. 31-4.

FREE! This Truck Visualizer Will Help You Plan; Send For It Today!

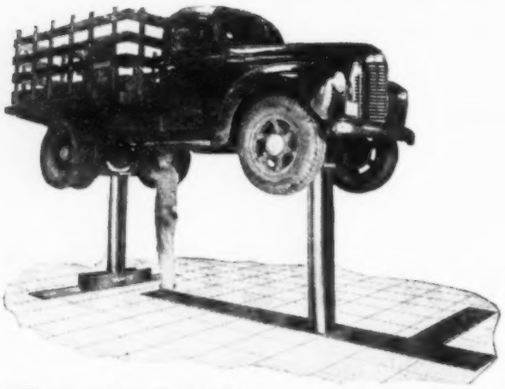
THE MEYERCORD CO.

World's Largest Decalcomania Manufacturers

5323 WEST LAKE STREET • • • CHICAGO 44, ILLINOIS

No Rails in the way!

WEAVER TWIN POST LIFTS



Handle all these services easier and more profitably . . . . . .

Lubrication, Muffler, Differential, Universal Joint, Crank Case, Pistons, Rings, Pins and Bearings, Tire Service, Wheel Alignment, Shock Absorbers, Wheel Bearings, Springs, King Pins and Bushings, Brake Adjustment and Relining, Bumpers and Fenders, Body Tightening, Rubber Mountings, Radio Installation, Wiring Inspection, Clutch Adjustment, Battery Box Service, Transmission, Propeller Shaft, Emergency Brake, Axle Shafts, Car Washing and Polishing, Complete Inspection and Appraisal.

Speed Up Work and Cut Service Costs . . . . . .

Save time and effort servicing your fleet—through the use of WEAVER TWIN POST LIFTS. These modern lifts *have no rails in the way*, and offer under-chassis accessibility and headroom unequalled by no other lift. Posts operate separately or together. Sink into floor when not in use, and can be driven over from any direction.

It's no wonder so many companies have installed not one but several TWIN POST LIFTS. Time studies on a wide variety of service jobs have proved it is possible to show 25% to 40% increased production with TWIN POST LIFTS as compared with ordinary methods.

The Heavy Duty Models have 24,000 to 36,000 pounds capacity, and are offered with a choice of being pneumatically or electrically operated.

Consult nearest Weaver jobber, or write us, for details on TWIN POST LIFTS *and the complete Weaver line including Headlight Testers . . . Brake Testers . . . Wheel Alignment Outfits . . . Wheel Counterbalancer . . . Lo-Hi-Draulic Jacks . . . Air Compressors . . . Wheel Dolly.*

FO-446

WEAVER MANUFACTURING COMPANY

SPRINGFIELD, ILLINOIS, U.S.A.

The RIGHT OIL for Your Trucks { for Safety / for Service / for Economy

Here's top performance and protection in most severe service. Here's the way to reduce repairs and overhaul to the minimum and get more pay-load miles at less cost!

SEVERE DETERGENT-TYPE

D-X
Heavy Duty
MOTOR OIL

WITH EXTREME PRESSURE QUALITIES

This superior, solvent-processed lubricant, refined from selected paraffin base crudes, possesses the essential heavy duty properties imparted by a scientifically prepared and thoroughly tested additive. It assures clean engines... safety to metal surfaces and moving parts... free rings.

For Light Trucks, Commercial Cars

New D-X MOTOR OIL

For All Diesel Engines

D-X DIESEL MOTOR OIL

★ ★ ★

WRITE FOR *FREE* FOLDER for information on D-X Heavy Duty Motor Oil; also details of the D-X Preventive Maintenance Plan.

MID-CONTINENT PETROLEUM CORPORATION

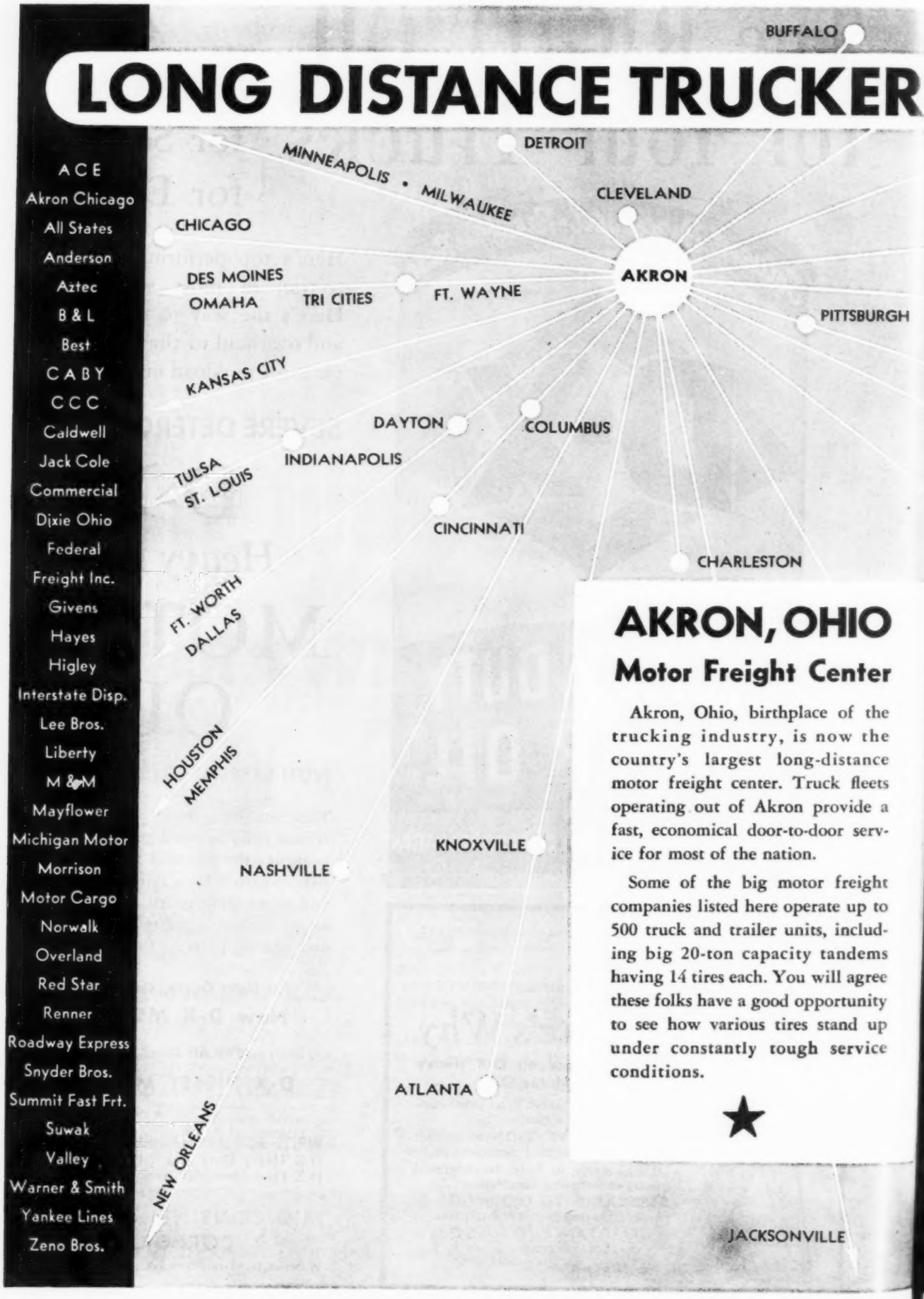
Waterloo, Ia. Terre Haute, Ind. TULSA Chicago Omaha

Here's Why

You can depend on D-X Heavy Duty Motor Oil:

–HIGH DETERGENCY to exert constant cleansing action
–SLUDGE PREVENTION to inhibit formation of harmful deposits
–DISPERSION to hold disintegrated matter in harmless suspension
–RESISTANCE TO OXIDATION to protect bearings against corrosion
–RESISTANCE TO FOAMING in crankcase service

LONG DISTANCE TRUCKERS



AKRON, OHIO

Motor Freight Center

Akron, Ohio, birthplace of the trucking industry, is now the country's largest long-distance motor freight center. Truck fleets operating out of Akron provide a fast, economical door-to-door service for most of the nation.

Some of the big motor freight companies listed here operate up to 500 truck and trailer units, including big 20-ton capacity tandems having 14 tires each. You will agree these folks have a good opportunity to see how various tires stand up under constantly tough service conditions.

SYRACUSE
ITHACA
BOSTON

LIKE MOHAWK TIRES . . . .

NEW YORK

PHILADELPHIA

BALTIMORE

WASHINGTON

NORFOLK

RALEIGH

From many of these well known motor freight carriers come favorable reports on Mohawk Tire service. One operator pointed out a Mohawk that has gone 100,000 miles, been recapped three times and the carcass still in good shape. Another big fleet operator using Mohawk Truck Tires since 1932 says that Mohawks made of synthetic rubber rival the excellent performance of Mohawk pre-war tires.

MOHAWK

Mohawks Go Farther

THE MOHAWK RUBBER CO., AKRON 5, OHIO

This SERRATED SADDLE never gets bald — its points stay sharp for sure grip on the axle. Milling — rather than casting or forging — is the cause of this benefit.
BUILT RIGHT from the bottom up
BLACKHAWK'S basic *difference* — from practical design to precision construction — makes these Hydraulic Jacks the world's most dependable and demanded jacks. From bottom up — they're built to give service way beyond their ratings. When you need a jack — buy the best — even if you must wait for it — buy a Blackhawk from your Blackhawk Jobber.
A Product of
BLACKHAWK MFG. CO.
Dept. J 746, Milwaukee 1, Wis.
BLACKHAWK HYDRAULIC JACK
You get LONGER PUMP LIFE because the Blackhawk pump housing is not a casting — and is not a part of the base — it's a "mirro-finished" non-porous tylinder bored from solid steel — easily replaced if necessary
Do you know that you can also get full power and travel from a Blackhawk Jack when you work it on its side? Blackhawk — original PUMP ON SIDE feature holds the reason.
Mister, there's a dozen more outstanding features inside to make this Blackhawk Jack rugged and dependable
This jack slides in place fast - - - thanks to its SLED TYPE BASE.
BLACKHAWK

FLEET OWNER

DEVOTED TO THE BETTER OPERATION AND MAINTENANCE OF ALL AUTOMOTIVE FLEETS

Vol. 36, No. 4—April, 1946

WASHINGTON REVIEW

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(The Editor's Column)

NO TRUCK PRICES YET?

● As this is being written (March 19th) the long-awaited dollars-and-cents ceiling prices on new commercial motor vehicles have not yet materialized, although by the time you read this, they *may* have been announced.

As we told you last month in this department, the prices at which you may have been able to buy new trucks during the past several months (if you were lucky) were necessarily high. They were entirely out of proportion to the current prices of passenger-cars, which have been "stabilized" at virtually little advance over the pre-war level.

Some authorities have predicted that when the dollars-and-cents ceilings are finally set, they will bear greater relation to volume production than the prices on limited-volume, war-produced trucks have. The latter is the price you have been paying during the past several months—prices which OPA says were necessarily high, because token-production of commercial vehicles during the war months was necessarily low.

It is obvious that OPA is delaying the announcement of the new truck ceilings, in order to give the manufacturers a chance to get into some semblance of volume production, which will, obviously, result in lower ceilings. And OPA is not entirely to blame, because strikes (as you well know) have seriously hampered *all* truck production.

Many fleet operators are quite furious over the thought that passenger-car ceilings thus far announced bear *some* relationship to pre-war prices, and that some trucks show as high as a 22 percent increase in price. They point out that actually *less* reconversion had to be done by the truck makers, since many truck assembly lines were not ripped out when the war started, and a lot of them continued right on functioning as truck lines, whereas the same cannot be said of the passenger-car assembly lines.

Although we have no basis for predicting this, it is believed that there will be little of a "roll-back" from current truck prices, in view of the fact that labor costs have skyrocketed, and that this has been reflected in things furnished by parts and material suppliers, as well. But it can be ventured that some of the large-production trucks may be listed at surprisingly low ceilings, while quite the contrary may obtain in the case of low-production vehicles.

Dollars-and-cents truck price ceilings have been promised repeatedly by OPA; the delay has perhaps been a wise exhibit of jurisprudence. When they do finally come around, here's hoping that truck production lines will actually be humming once more; then the ceilings will really mean what they say, if you get what we mean.

OPA RAISES AUTO PRICES

● As a forerunner of what the commercial vehicle using industry may expect, OPA last month, by giving three manufacturers "elastic" ceilings, has virtually granted increases on automobile prices and thus established a precedent for future actions of a similar nature.

The way was paved for price increases on new automobiles by authorizing three companies (Chrysler, Ford and Hudson) and their dealers, to sell cars on an "adjustable pricing basis", pending OPA action carrying out an upward adjustment in prices to reflect recent factory wage increases. In other words, you buy the car at today's prices and you may be billed later for an additional amount equal to the increase in ceiling prices.

This latest move was as a result, no doubt, of the Government's new wage-price policy and the increases to be allowed will supersede those authorized when OPA set ceiling prices on automobiles a few months back. The increases had not been determined as this was being written on March 19th.

•

PARTS CONTROL EASED

● The general provisions of suppliers' inventory regulations (known as Limitation Order L-63 in the parlance of the Civilian Production Administration) were originally construed to include automotive replacement parts, although it only mentioned the all-inclusive and perhaps ambiguous word "supplies".

Inquiry was sent out by the Motor & Equipment Manufacturers Association on Feb. 28th, with the petition that "there should be no inventory controls on automotive replacement parts," and that everything possible should be done to encourage all the

production that this country can muster, considering that virtually every vehicle still rolling needs parts.

We have just learned that replacement parts have been *removed* from the meaning of this order, the CPA admitting that "a diminished supply of such parts would hamper the proper maintenance of trucks, buses and cars."

On the other hand, the CPA asserted that tires, tubes and batteries are *not* deemed to be replacement parts, and are consequently *still* subject to the general controls of L-63. This order requires a 3 to 4-month inventory limitation on the part of suppliers.

Under the amended order, replacement parts are now only subject to practicable minimum working inventory limitation restrictions, which should result in a more plentiful supply of replacement parts than heretofore.

●

SAFETY PARLEY MAY 8-10

● Organization of President Truman's Conference on Highway Safety, scheduled for May 8, 9 and 10th in Washington, D. C., is proceeding with the appointment of special committees to study and make recommendations on different phases of the traffic safety problem, such as accident-reporting, law-enforcement, engineering, laws and ordinances, driver-licensing, education, public information and public support.

Invitations are going out from the White House to the Speaker of the House, the Presiding Officer of the Senate, chairmen of the Senate and House roads committees, and representatives of interested departments of the Federal Government.

Also to be invited are the Governors of the States; State highway and motor vehicle commissioners; chiefs of State police, and State superintendents of public instruction; State public service commissioners; representatives of State legislatures; and representatives of labor, business, industry and the professions.

The mayor or city manager, the chief of police, the school superintendent, the traffic engineer and the street commissioner of all cities of 25,000 or more are being invited, as are representatives of numerous national public and private organizations, and of newspaper publishers, radio and moving picture interests.

Meantime, highway-user organizations in several States are becoming increasingly active in traffic safety programs.

The Governor of West Virginia has called upon the member groups of the Highway Users Conference to set up a highway safety committee to include representatives of motor vehicle owners, public officials and interested civic, business and fraternal groups.

Highway-user organizations in the New York and New Jersey Conferences are offering their services to the Governors of those states in organizing and energizing highway safety programs.

●

ORIG. EQUIP. TRUCK PARTS OFF PRICE-CONTROL LIST

● Price control on parts for trucks and other commercial vehicles was suspended by OPA last month. This applies only to parts that are sold to vehicle makers for original equipment use. . . . All parts sold for use in the repair or replacement of vehicles are *still* under price control, however, with ceilings set at the highest prices charged by individual sellers as of March 1942, OPA explained.

The suspension does *not* affect such items as tires, batteries and automotive radios, whether sold for original equipment or replacement use—and these are *continued* under price control, regardless of the end-use, OPA said.

OPA said that it intends to watch the trend of parts prices closely and should original equipment parts prices begin to rise too rapidly, control over the entire automotive parts industry may be immediately restored.

"Although price control on automotive parts for original equipment is suspended, the vehicle manufacturer is restricted as to the extent to which his selling price for the vehicle may reflect an increase in the cost of that part to him," OPA said. "Unduly high prices will not be recognized in vehicle pricing.

"In general, a parts seller's prices will be considered excessive if they are higher on the average than prices that would have been allowed him had the parts been kept under control."

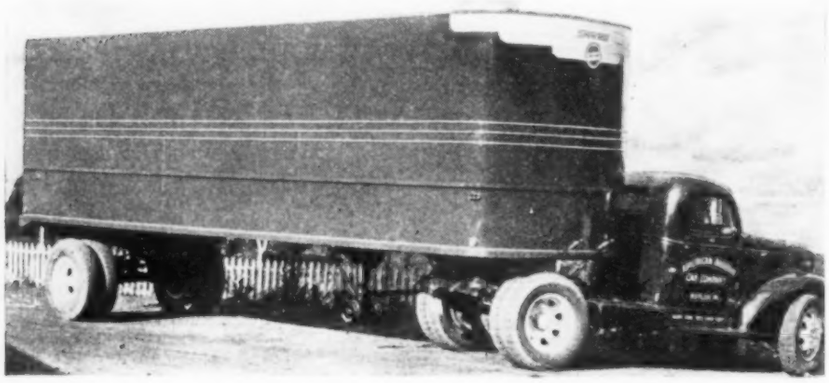
●

NO MILLION TRUCKS IN 1946?

● Truck owners who have been nursing their pre-war models along for the past five years, will have to wait several months more before new trucks will be available in quantity. That is the conclusion reached in a study of truck production recently made by the *N. Y. Journal of Commerce*.

Strikes and shortages of critical materials are holding up production of new trucks, and it is not believed that peak output will be reached within six months. Even then manufacturers are doubtful if more than 800,000 to 1,000,000 trucks will be turned out in 1946.

That means less than half of the 2,000,000 worn out trucks now rolling up mileage far beyond normal limits will be replaced this year, the study shows.



HERE is the first of American Bantam's "Supercargo" trailers to roll off the assembly line. . . . The line consists of a standardized closed van, an open-top van, a flat-bed and a chassis. . . . Production of at least 500 per month is expected by next September. We are promised a complete illustrated mechanical story on these jobs for next issue.

SAVES YOU MONEY EVERY TRIP !

The Coupe Express
One-ton Pick-up

Studebaker's economical one-ton pick-up truck

ALMOST from the first day you buy it, you know for certain that this one-ton Studebaker pick-up truck is a marvel at money saving.

You don't have to keep records with split-penny accuracy to discover this. You're quickly aware that you're spending less money for gas than a truck of this power and load capacity ever cost you before.

It's powered by Studebaker's brilliant Econ-o-miser engine used in the famous Studebaker Weasel personnel and cargo carrier during the war. Its sound, solid Studebaker construction keeps this big-capacity truck free from the need for costly repairs.

Engineered and built to save!

Regardless of size, all Studebaker trucks operate with exceptional economy, because Studebaker has successfully solved the problem of designing a truck so that it gets the maximum mileage out of every gallon of gasoline and every set of tires.

High quality materials and fine father-and-son craftsmanship still further increase every Studebaker truck's value as an investment in low-cost transportation.

Demand is greater than supply right now. But the time is coming when everyone who wants a Studebaker truck can get one.

See your nearby Studebaker dealer—and remember, these trucks have the quality and stamina that won high acclaim for over 200,000 Studebaker military transport vehicles in tough service all over the world.

Studebaker

South Bend 27, Indiana

PIONEER AND PACEMAKER IN AUTOMOTIVE PROGRESS

WASHINGTON REVIEW....

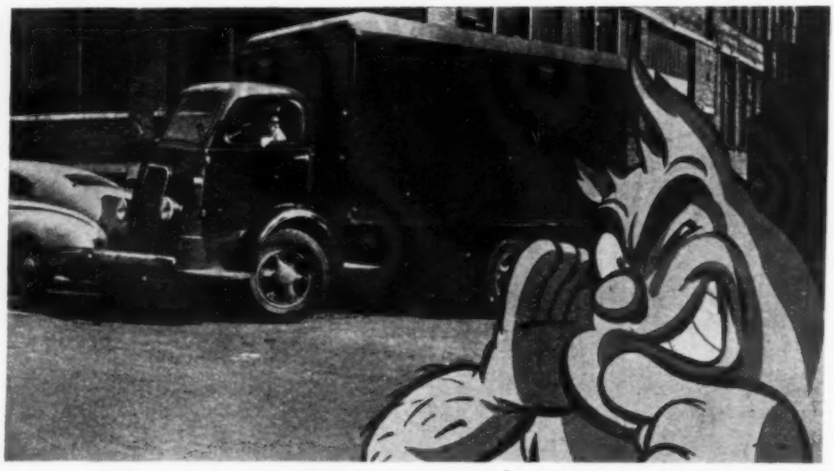
Continued from Page 56

ICC FINANCE SECTION OUT

● The Interstate Commerce Commission recently ordered the discontinuance of its Section of Finance, Bureau of Motor Carriers, it was revealed in Washington last month.

Hereafter all work and personnel of that section will be transferred to other sections of the Bureau of Motor Carriers, except motor carrier cases dealing with the issuance of securities, which go to the ICC Bureau of Finance.

The Section of Finance had under its jurisdiction all applications for approval of mergers, unifications and poolings, cases of obligation or liability, and cases having to do with the issuance of securities. The Bureau of Finance, which now gets securities cases, also handles railroad matters of this kind. Most of the other work will now go to the Section of Complaints, Bureau of Motor Carriers, it was predicted.



THIS is a still from National Safety Council's new sound slide film; the title of it is "P.U.D. Driver Wins Again". . . . A typical day in the life of a pick-up and delivery driver, and the way he avoids accidents, is depicted in the film, which also points out how skilled, courteous drivers can avoid mishaps and prevent common accidents.

●

TIRE TRADE-INS

● Specific trade-in allowances have recently been established by OPA for repairable old tires and tubes turned in by buyers of new ones. This action (Amendment No. 5 to Revised MPR No. 528) was necessitated by the end of tire rationing and the increasing supply of new tires, OPA said.

During the tire rationing period, traded-in tires and tubes were generally unrepairable and came under the category of scrap, requiring little or no allowances. Now, with better quality tires being traded-in, the OPA requirement that dealers give "a fair allowance" for trade-ins has been found to be inadequate.

Three categories are now established to determine the allowance, if any, for all tires traded-in. These are:

1. No allowance is required for traded-in tires which (a) have damaged bead wires or bead reinforcement, (b) are worn through more than half the total number of plies, (c) are hard or inflexible, aged, dry-rotted, excessively weathered or water-soaked, or (d) have blowouts, cuts or injuries greater in length than one-half the tire cross-sectional diameter.

2. A minimum allowance of 50 cents per tire is required for all other traded-in tires which (a) are in need of two or more sectional repairs, (b) are in need of four or more spot repairs, (c) are in need of one sectional repair and two or more spot repairs, (d) have more than three radial cracks extending through the rubber into the cords, (e) have loosened cords or ply on inside of casing or ply separation, (f) are worn in the cord body to such an extent that it cannot be effectively repaired and made suitable and guaranteed for safe use under normal operating conditions, or (g) are repaired with emergency repairs.

3. The minimum allowance for all other tires is the established dollar-and-cent retail ceiling prices for used tires of their type and size, less a minimum discount of 25 percent. In no case, however, may the allowance be less than 50 cents.

Two categories are also established for traded-in tubes, as follows:

1. No allowance is required for used tubes damaged to the extent that they cannot be repaired so as to qualify them as sound tubes.

2. The minimum allowance for all repairable used tubes is the established dollar-and-cent retail ceiling prices for used tubes of their type and size, less a discount of 25 percent. In no case may the allowance be less than 50 cents for special purpose tubes or less than 25 cents for all other tubes.

At the same time, a reduction of 25 percent has been made in ceilings on wholesale sales of repairable basic tire carcasses before being recapped.

Heretofore wholesale ceilings were generally the same as the established dollar-and-cent retail ceilings. Now they will be those ceilings, less 25 percent. This change has been made so that the wholesale buyer, generally a recapper, will be able to buy these tires and resell them without recapping, if he desires.

PESCO Division of Borg-Warner used this truck mock-up to demonstrate its new vacuum brake intensifier, for power application of hydraulic brakes on trucks. Engineer watches movement thru glass top.

●

MORE RADIO APPLICATIONS

● Six additional taxicab companies have filed applications with the FCC to install portable mobile radio-telephone equipment, the applications also including requests for authority to set up fixed stations.

Companies include the Yellow Diamond Cab Co., Charleston, S. C., a fixed station and 35 pm units; Blue and White Cab Co., Corpus Christi, Tex., fixed station and one pm unit; Yellow Cab & Baggage Co., Inc., Topeka, Kan., fixed station and 20 pm units; Carl Lee Johnson (individual) Pine Bluff, Ark., fixed station and 15 pm units; Star Taxi Co., Houston, Tex., fixed station and one pm unit. . . . . This information comes to us through the manufacturer of Motorola radio equipment, which, it is said, the aforementioned companies are planning to use.

Put Your Fleet Problems in This Test Tube

Hundreds of Fleets Depend on advice from

VALVOLINE'S FLEET LABORATORY SERVICE

From a chemical and physical analysis of your crankcase drainings—sometimes supplemented by an examination of engine parts—Valvoline Fleet Laboratory can show you how to get better fleet performance at less cost per mile.

These laboratory tests are as exhaustive as science can make them. And in every case the conclusions are evaluated in the light of your own operating conditions—our suggestions are simple—practical—easy to use.

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VALVOLINE FLEET CONTROL LABORATORY SERVICE

Ask the Valvoline man how this service can be obtained FREE

WASHINGTON REVIEW....

Continued from Page 58

OIL PRICE CONTROL to END?

● A statement recently made by Chester Bowles, now Economic Stabililization Administrator, predicts that the oil industry may be relieved of price control within six months and possibly prior to July 1 of this year.

Mr. Bowles is quoted as saying: It is my understanding that OPA plans to include in this de-control action not only crude petroleum, but all refined and manufactured products of petroleum as well". . . . This, of course, would include gasoline, motor oil and other automotive lubricants.

●

BATTERIES STILL TIGHT

● The production of automotive storage batteries, according to the Civilian Production Administration, (for replacement purposes) will be limited by the short lead supply for some time to come. However, there is no evidence that any motor vehicles have been forced off the road for lack of batteries.

As a matter of fact, shipments of batteries in the latter part of 1945 were running close to permitted rates of production, whereas shipments usually exceed production in the third and fourth quarters of the year. The amount of lead programmed during the first quarter will allow the industry to produce 4,184,000 replacement batteries—a rate somewhat in excess of average quarterly shipments in each of the years 1940, 1941, and 1942, all years in which automobile registration was greater than it is today.

The present difficulties of the battery industry arise from a desire to utilize for the current production of civilian batteries all the labor and capacity built up during the war to meet military requirements, in addition to what was originally available to meet peacetime needs. There will be sufficient replacement batteries to forestall any transportation breakdown, but the supply will not be easy, CPA predicts.

●

MORE CHRYSLER CEILINGS

● Ceiling prices for eight additional Chrysler 1946 models—all in the eight-cylinder line—have recently been announced by OPA. . . . The new ceilings range from $113 to $150 above those for comparable 1942 models, due largely to allowances ranging from $98 to $109 for engineering improvements, including new grill and front and rear bumpers, added body mouldings and ornamentation, changed steering wheel assembly, improved cooling system and carburetion, and new interior appointments.

FOR 20 years of service with Goodrich, Guy Gundaker, Jr. (right) replacement tire sales manager, receives his 20-year service pin from John L. Collyer, Goodrich president. . . . Congratulations!

CPA's MONTHLY FIGURES

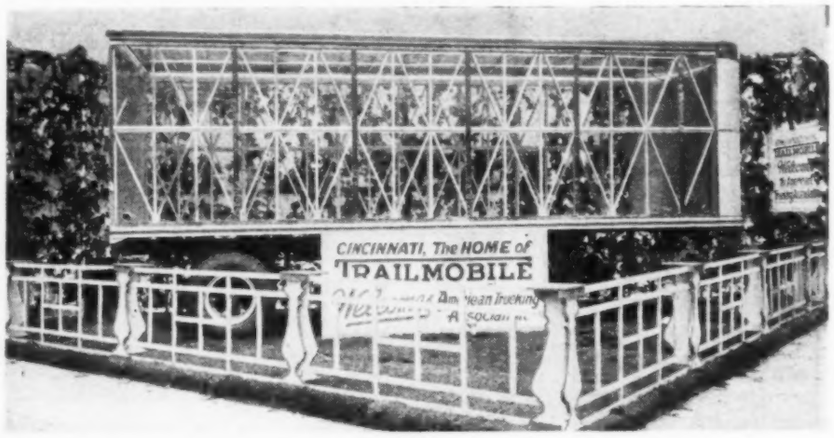
● Final figures of truck, car and tire production, on a per-month basis, will henceforth be published in this department, as fast as they are received from the Civilian Production Administration. . . . The following is their monthly report on civilian production—for the month of January:

Trucks: Production of 54,791 commercial trucks in January was just short of double the December rate of production of 28,792 units, and was practically equal to the industry's forecast—the first time that automotive manufacturers have reached their forecast since restrictions on production were removed.

Most of the increase in production in January took place in light and medium trucks. Light truck production increased to 24,577 units, compared with 12,606 in December and 16,912 in November. Medium trucks rose from 11,132 in December to 23,956 in January, but were still below November production of 30,754 units. Both light-heavy and heavy-heavy trucks showed small increases over previous months, with light-heavy production of 4,600 units and heavy-heavy of 1,678.

Automobiles: Car production in January nearly doubled, reaching 58,575 units, compared with 30,022 in December and 34,612 in November, but was far short of the manufacturers' forecast for the month. Labor-management difficulties in automobile manufacturing plants and in plants of suppliers continued to affect production adversely. As these are cleared up and production rises to new high levels, shortages may appear in materials such as castings, or textiles for upholstery.

Tires: Tire output in January increased about 25 percent over December and approached the levels necessary to meet 1946 production goals for both passenger and truck and bus tires. Passenger tire production in January exceeded 4.8 million tires, compared with 3.9 in December and with 2.6 in September. Truck and bus tire production climbed from 1.0 million in December to 1.3 million in January—a monthly rate more than adequate to meet the 1946 scheduled output of 13.7 million tires. Imminent shortages of bead wire, however may cut heavily into February output. Production lines were reported down in three small companies in the first week of February for lack of bead wire, and inventories of this material in other companies averaged only about ten days' supply.



HERE is what Trailmobile showed at the recent ATA Convention in Cincinnati. . . . It's a transparent, Lucite-paneled job which shows the new "diamond"-type sides, built of U-shaped channel posts and struts, which are featured in all 1946 Trailmobiles. We are promised a complete illustrated mechanical story on these jobs for next issue.

What Grey-Rock BALANCED BRAKES mean to fleet operators

SMOOTHER
SAFER STOPS

DRIVER COMFORT ✓
AND SATISFACTION

MORE TIME ON THE ROAD

FASTER SCHEDULES

LONGER LIFE FOR
LININGS AND DRUMS

LOWER MAINTENANCE COSTS

✓DRIVER COMFORT AND SATISFACTION

DRIVERS TELL US that nothing wears them down faster . . . or slows up schedules more . . . than unbalanced brakes.

That's why they're so strong for Grey-Rock *Balanced* Brakes!

Give them the confidence they want. Grey-Rock linings are *balanced* so that each shoe does its job in team-work with the others. Results: smooth, positive stops every time!

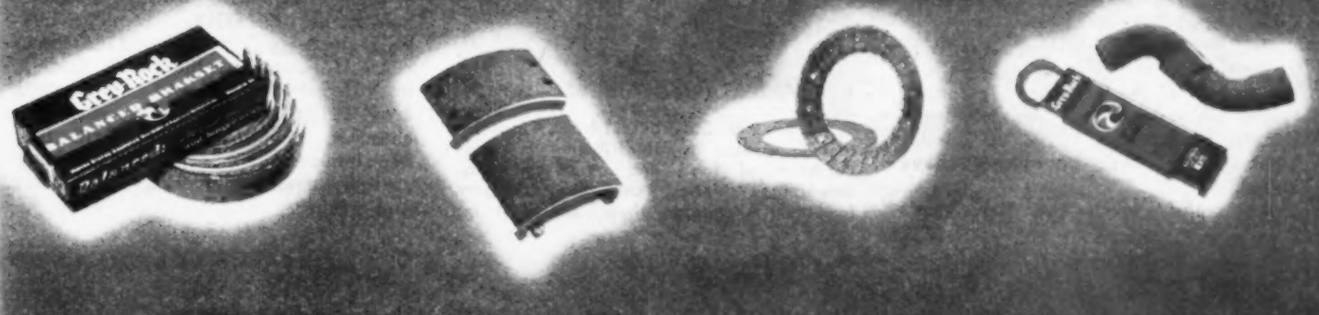
Protect your investment, in vehicles and drivers, by installing Grey-Rock *balanced* linings, and blocks. Your Grey-Rock jobber has them . . . right for the job, ready to use. He will also gladly furnish Grey-Rock service methods, and National Safety Council standards for efficient shop practice. For unusual conditions, he will arrange a special survey by Grey-Rock engineers who will give you the benefit of their experience with hundreds of thousands of trucks and buses in the field.

Keep your drivers happy. Bring 'em back fresh as a daisy by providing the smoother, safer stops that come only from Grey-Rock *balanced* linings. UNITED STATES ASBESTOS DIVISION of Raybestos-Manhattan, Inc., MANHEIM, PA.

TO MAKE 'EM *LAST*, PUT QUALITY *FIRST*

UNITED STATES ASBESTOS DIVISION
of Raybestos-Manhattan Inc., Manheim, Pa.

Grey-Rock
BALANCED BRAKE LININGS



WASHINGTON REVIEW....

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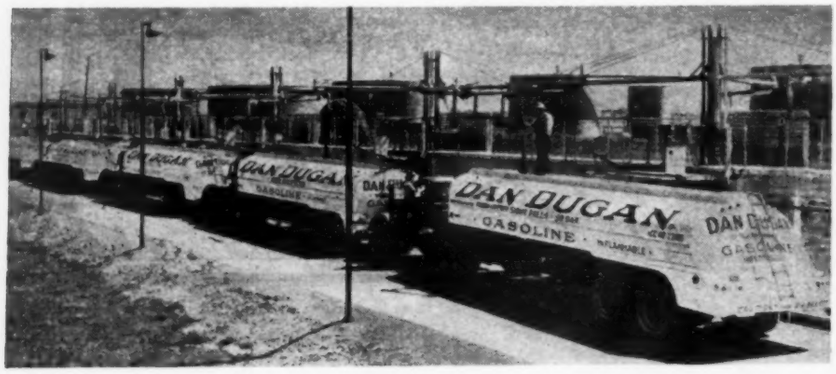


HAULS a million gallons a year with tank-trailers. . . . Dan Dugan started hauling petroleum products from Kansas to Nebraska in 1933, moving to Sioux Falls, S. D., in January 1943, following ODT's ban on tank-car use for shipments within 200 miles of pipelines. . . . Here is a part of Dugan's present fleet of 37 big Fruehauf tank trailers.

THE RECONVERSION OUTLOOK

● Prospects for transportation equipment production in 1946 are generally favorable, according to John W. Snyder, Director of War Mobilization and Reconversion, in a report recently made to President Truman. "Truck production has been increasing since the end of the war and during the first half of 1946, pre-war levels will probably be reached or exceeded," he said. Bus production is being maintained at between 500 and 600 units per month, which is roughly the same as the pre-war average, according to Mr. Snyder, and now that strikes are virtually settled, the basis for volume production of passenger-cars is now fairly well defined. . . . Here are a few further quotations from Mr. Snyder's report:

Trucks: During the last half of 1945, heavy and light-heavy truck production has been about 60 percent higher than pre-war levels, which were about 800 to 1,900 units per month respectively. Output is expected to continue at this high level during the first half of 1946.

During 1945 output of medium trucks has climbed back to the pre-war average of about 30,000 units a month. Light truck production has increased during 1945 from zero to over 50 percent of the pre-war normal of 26,000 trucks a month. This pre-war volume can probably be exceeded during 1946.

These levels of truck output should assure the maintenance of essential transportation services, but they will fall far short of satisfying accumulated demand.

Bus Production: Bus production is being maintained at between 500 and 600 units per month, which is roughly the same as the pre-war average. Output is expected to go up during 1946, after work stoppages have ended.

Automobiles: In the five years from 1935 to 1941, the average annual passenger automobile production was somewhat higher than 3 million, with a peak of about 3.9 million in 1937 and a low of about 2 million in 1938. With a reasonable certainty that all cars which can be produced will be sold, the auto industry had hoped, before the strikes, to turn out 4 million cars in 1946. This level of output has been reached only once in the history of the industry, when 4½ million cars were produced in 1929.

It is not yet clear how much difficulty manufacturers will have in purchasing such components as castings, and there are other uncertainties in the production outlook. Shortages of certain materials are likely to plague the industry for many months. But the preparatory technical work has been completed and the basis for volume production is now laid.

Heavy Equipment: The accumulated civilian demand for large power cranes and shovels, track-laying tractors and earth-moving equipment is so great that the construction equipment industry expects to operate during 1946 at levels higher than any pre-war year. Construction machinery, farm machinery, transportation equipment, tools and other capital goods that were produced throughout the war are for the most part being produced at and above pre-war rates.

ONE of 200 Studebaker trucks recently sent to Greece by UNRRA for the transportation of food and other essentials. Gilbert F. Marick, chief of transport for the "A" region there, checks it in.

Rubber: Combined supplies of natural and synthetic rubber are expected to be ample to meet 1946 consumption requirements, now estimated at about 900,000 long tons, but only if present conservation measures governing the use of crude rubber are continued. The amount of natural rubber that can be supplied is a matter of great uncertainty at present.

On the basis of present conversion specifications, the natural rubber requirements would be approximately 100,000 long tons for 1946. Actual usage will depend on the rapidity with which natural rubber becomes available from the newly-liberated Far East and the policy established on building up natural rubber stocks in the United States.

All natural rubber and virtually all synthetic rubber are purchased and sold by Rubber Reserve, at OPA ceiling prices and are subject to CPA regulations. Almost all production of the synthetic is in Government-owned plants and the Government is the sole purchaser of natural rubber. With demand for the scarce natural rubber regulated by domestic allocation and specification controls, significant inflationary or deflationary pressure is not likely to develop. All present controls must be continued until adequate supplies of natural rubber are available.

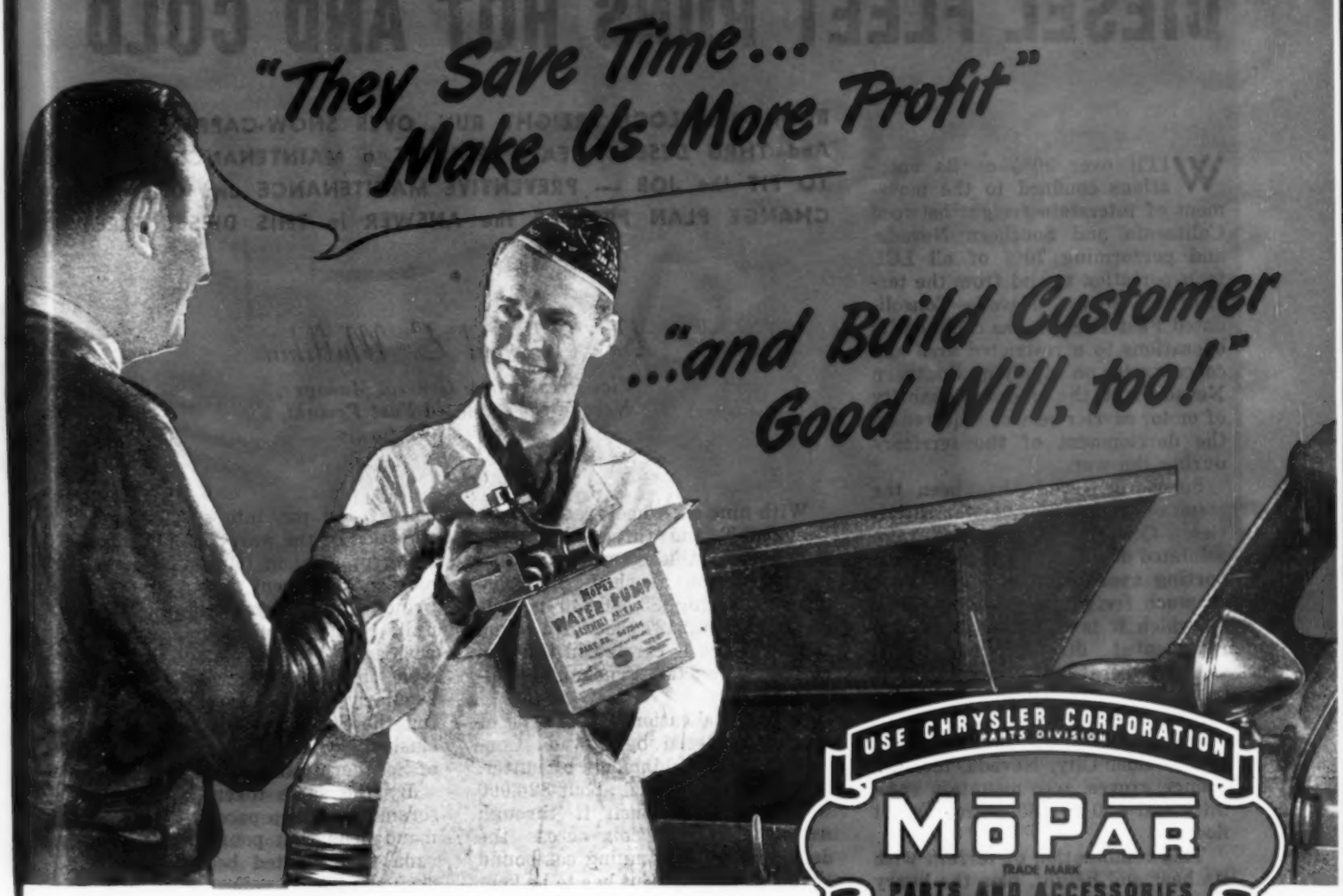
"The basic responsibility for production and sale in the reconversion industries rests on the industries concerned. However, where necessary, the Government must facilitate resolution of management-labor difficulties, and the Government must and will contine to assist in breaking bottlenecks in facilities and components," Director Snyder concluded.

●

MORE HUDSON CEILINGS

● Ceiling prices for seven addition Hudson 1946 models—one six-cylinder and six eight-cylinder passenger-car models, were announced last month by OPA. . . . The new ceilings range from $15 to $101 above those for comparable 1942 models, due largely to allowances ranging from $11.85 to $79.02 for engineering changes, including heavier grill, larger bumpers, and changes in body styling, chassis springs, front axle and wiring.

MoPar SERVICE PACKAGES



USE CHRYSLER CORPORATION PARTS DIVISION
MoPar
TRADE MARK
PARTS AND ACCESSORIES
FACTORY ENGINEERED AND INSPECTED
FOR

Plymouth
DODGE
DeSoto
CHRYSLER
DODGE Job-Rated TRUCKS

Yes, garagemen everywhere know that it saves time and makes every repair job more profitable to have available in one package both the *right* parts and *all* the parts needed for the job. That's exactly what you get in *MoPar* Service Packages.

MoPar Parts are designed by the engineers who built the vehicles. They are factory-inspected, exactly as the factory-installed parts they replace. Therefore, they install easier ... wear longer . . . and build customer good will.

MoPar Service Packages are available for Water Pump, Brake Lining, Wheel Cylinder, and many other service jobs.

NOTE TO ALL REPAIR SHOPS

If you need Service Packages or individual parts of any kind for a Plymouth, Dodge, De Soto, or Chrysler, obtain them from a dealer for these vehicles.

Hear America's most popular conductor—Andre Kostelanetz and his "Music Millions Love" with famous guest stars—every Thursday, C.B.S., 9 P.M., E.T.

CHRYSLER CORPORATION—PARTS DIVISION, DETROIT 31, MICHIGAN

DIESEL FLEET RUNS HOT AND COLD

ROUND-the-CLOCK FREIGHT RUN, OVER SNOW-CAPPED PEAKS And THRU DESERT HEAT, REQUIRES a MAINTENANCE SET-UP TO FIT the JOB — PREVENTIVE MAINTENANCE and UNIT EXCHANGE PLAN PROVIDE the ANSWER in THIS DIESEL FLEET

•

By Willard E. Mullikin

Vice-President & General Manager,
Nevada Consolidated Fast Freight,
Los Angeles, California

WITH over 90% of its operations confined to the movement of interstate freight between California and Southern Nevada, and performing 70% of all LCL transportation to and from the territory it serves, Nevada Consolidated Fast Freight has confined its operations to a restricted area and concentrates on supplying Southern Nevada with the kind and quantity of motor carrier service required by the development of the territory during the war.

Southern Nevada has been the scene of very extensive war activities. Consequently, Nevada Consolidated during the war was transporting approximately seven times as much freight as it did in 1940, of which it is estimated that 82.5 represented directly war-related traffic. Operating through the most "contrasty" country served by motor transport, the route from Los Angeles, California, to Las Vegas and Boulder City, Nevada, includes orange groves, zero mountain summits and 120 to 130-degree desert floors.

This combination of terrain with its heat and height, plus the hurry of tight schedules, was strictly a Diesel run, with perishables and foodstuffs in on the eastern trip and strategic metals out on the western movement.

With nine six-wheel tractors (six Diamond-T and three Kenworth) assigned to this run, the annual fleet mileage reached 1,336,000 miles, carrying 83,486,840 pounds of freight on 2,127 scheduled round trips. Cargo is carried in thirteen 35-foot two-axle Fruehauf semi-trailers.

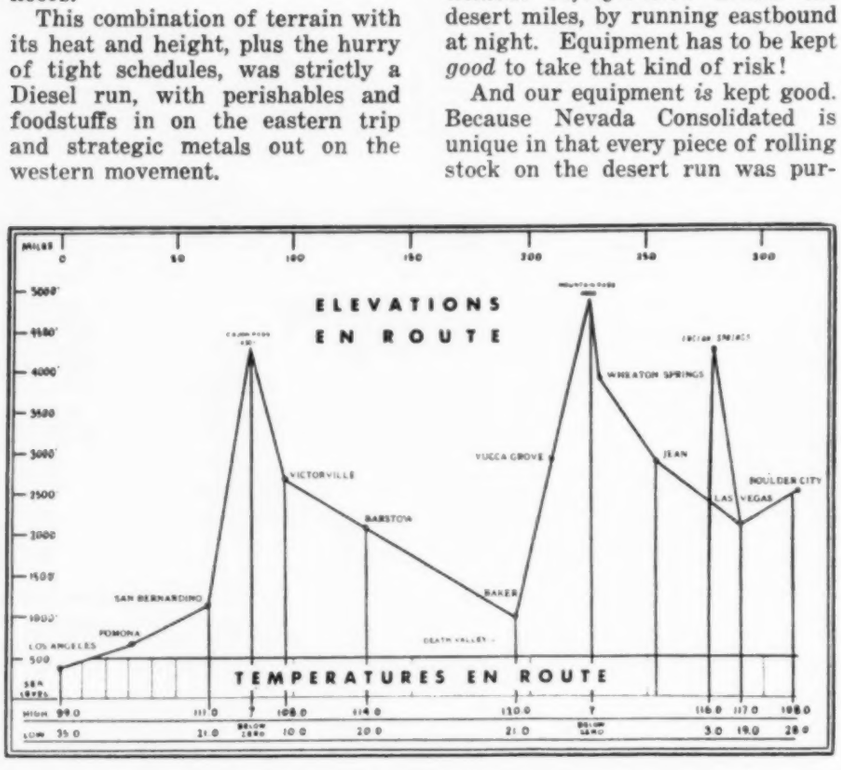
A good indication of the type of service rendered by Nevada Consolidated is in shipments of butter. A 35-footer will hold about $20,000 worth, and we push it through *without refrigeration* across the desert miles, by running eastbound at night. Equipment has to be kept *good* to take that kind of risk!

And our equipment *is* kept good. Because Nevada Consolidated is unique in that every piece of rolling stock on the desert run was purchased and put into service since the start of the war. This is something unusual in truck history, as most outfits went into the tough grind of stepping up ton-miles with units that were more or less hoary with age. Necessity made this possible, because we were the only regularly-established carrier serving the Southern Nevada area exclusively with terminus there, out of Southern California.

By the same token, we had to scramble to keep pace with the demand flood that poured in on Nevada Consolidated because of the rush expansion policy of both the Army Air Force, and the Defense Plant Corporation's basic magnesium plant near Las Vegas which was completed in 1941. Weight transported really jumped, beginning in 1941, as indicated by the following figures from our traffic department:

Our average tonnage handled in 1940 per month, was 842,672 pounds; 1941, 1,797,543 pounds; 1942, 6,957,237 pounds. By taking 1940 as an index of 100, 1941 tonnage was 213. But our 1942 tonnage was 825—something definitely astounding in motor transport tonnage growth. From then on our tonnage leveled off at the five-and-a-half million pound mark and an approximate index of 650 plus.

A large part of our success in handling this tremendous increase in tonnage is due to the loyal support rendered by all members of the operating and mechanical staff. No one spared themselves and many weeks they put in a total of 65 hours each, to "keep 'em rolling". And many of our drivers at that



THIS chart shows mountain climbs and desert route on the Los Angeles-Las Vegas run.

PART of the fleet meets in the desert. These units are Cummins Diesel Diamond-T tractors hauling 35-ft. Fruehauf semi-trailers.

time had not been long in our employ. But they all "gave," and generously.

Through the combined efforts of all concerned, we were enabled to increase the net weight transported per schedule from 33,933 pounds in 1940 to 57,702 pounds per schedule in 1944. This we know positively, because every schedule departing from Los Angeles is weighed by a public weighmaster to determine not only the gross load, but also the load distribution, to prevent individual axles from being overloaded. This practice has been in effect for several years, and has enabled Nevada Consolidated to correct overloading, and to approach absolute capacity on its loads.

Efficiency is easy to recognize but difficult to demonstrate. Because Nevada Consolidated has been fortunate in being officered and staffed by men of long experience in the field of motor carrier operation, with only *three* times as much line-haul equipment in September 1944 as in September 1940, *eight* times as much traffic was carried.

This improvement was effected not only by operating more schedules with each vehicle, but by increasing the net load transported on each schedule by 70%.

In September, 1943, when a check was made, each of Nevada Consolidated's equipment units performed the useful work of 3.7 railroad freight cars, measured in net ton-miles of freight transported. To substantiate this statement beyond question, again traffic was carefully analyzed for the same month, September, 1944. At this check, it was verified that each unit in the fleet transported 3,918 net tons per vehicle-day, compared with an average of 975 net ton-miles per car day accomplished as a *new record* by American railroads in 1942.

Based on this yardstick, *useful work accomplished*, as of September, 1944, each Nevada Consolidated fleet unit did the useful work of *four* railroad freight cars and giving effect to the difference of capacity, fleet units operated *ten times* as efficiently as the average railroad car performance.

As ton-miles statistics are not regularly maintained by many motor carriers, whether this is an overall picture of the industry or not, it is impossible to say at this time. But to make this standard of performance possible, Nevada Consolidated bent every effort to avoid or minimize mechanical failures, lessen time required for loading and unloading, and to keep rolling equipment on the road hauling freight where it was needed, in the prosecution of the war and the maintenance of the civilian economy.

To meet the rapidly expanding requirements arising from the construction of for-war facilities in the Southern Nevada area, early in 1941 Nevada Consolidated found it necessary to augment its facilities to enable it to meet this expansion. Leasing of additional equipment was resorted to and this continued until the end of 1942.

Beginning in 1943, however, two factors made it increasingly difficult to follow the practice of leasing

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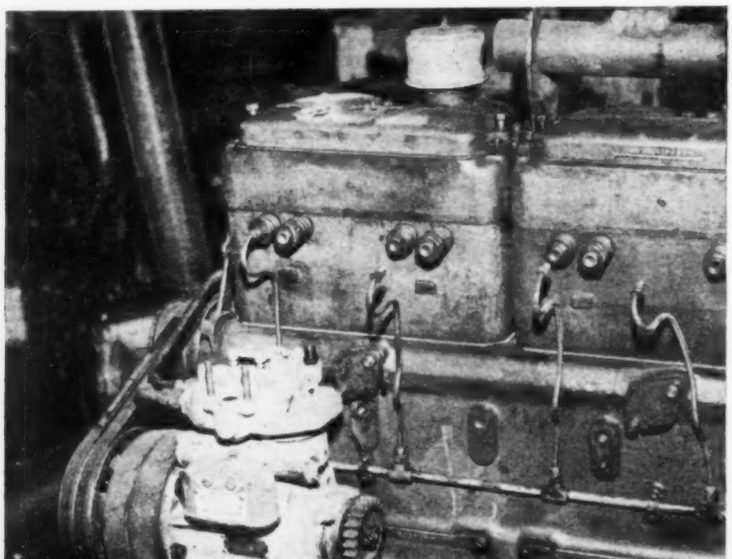
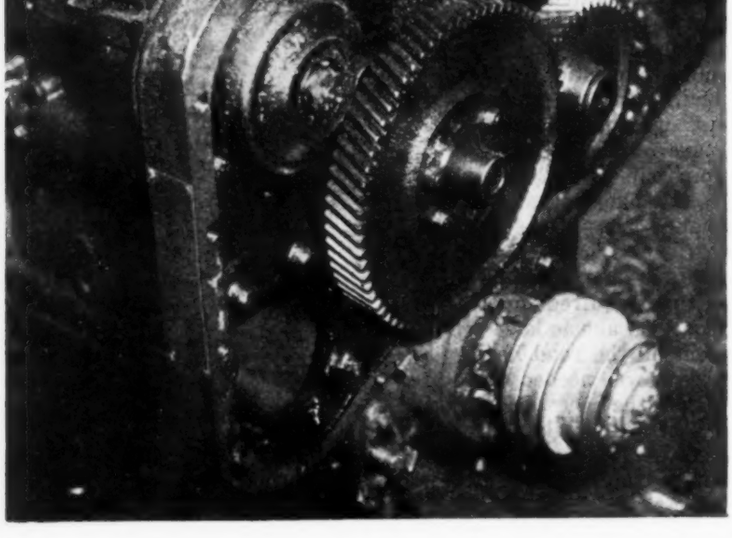
IN this fleet an engine service overhaul job is done in 8 hrs. . . . This includes new cylinder sleeves, pistons, pins, bearings and valve-grind, without removing engine.



A GOOD example of how this fleet takes advantage of exchange units is shown here. This is a newly-overhauled Cummins Diesel which carries a factory-exchange Bendix-Westinghouse compressor.

THE timing gears too, are replaced if necessary at the major overhaul every 150,000 mi. . . . Timing gears are often neglected by fleet men. Worn gears can spoil an otherwise good job.



as a solution to meeting traffic demands. The first of these factors was the volume of traffic available *within* the state of California, and the ease with which a "one-truck" operator could engage in business in his own name. Permits for such operation may be obtained from the State Railroad Commission by the filing of insurance policies, and the payment of a nominal fee.

But it's different, much so, in the state of Nevada, where the license fees are high; too high, in fact, to make licensing on a trip-basis economically sound. Nevada Consolidated's lease arrangements always involved the purchase by it of the Nevada license, which necessarily entailed the entering into a lease over a substantial period of time. However, it developed that soon the ability to lease was no more. Because of the modest requirements of the state of California, the owners of the leased equipment began taking advantage of the "within" state traffic demand and branched out as "radial common carriers" in virtually every case.

Because of these conditions, it became necessary to apply for permission to purchase the necessary equipment to transport the tonnage that had to be moved and in May, 1943, our present modern Diesel tractors with their 35-ft. semi-trailers began to go into service. The very fact that these units were new and we were freed from nursing aging equipment that was not our own, put every man on his toes. This was particularly so in the mechanical department and with the line-drivers. By handling all maintenance in our main terminal shop in Los Angeles, which takes pride in keeping its units in top mechanical condition, it has been possible to eliminate road failures altogether.

The shop is run by two brothers—Henry and Cecil Johnson, with Henry in charge. No small part of our successful operation is due to these mechanical geniuses. And, in addition to our preventive maintenance, they handle all engine overhauls, with the exception of crankshaft, camshaft and cylinder sleeve reconditioning. For instance, a service overhaul job—re-sleeve, pistons, pins, bearings and valve-grind—without pulling the engine—is done in eight hours. Engines are pulled each 150,000 miles; an extra engine, always ready, is substituted, to avoid delay to any unit.

This "unit exchange" plan has been adapted to function in all of our line equipment. Under this plan, in addition to engine exchange, additional transmissions, both main and auxiliary, and rear ends are kept ready for immediate service. When repairs of a major nature are required, rather than working on the engine or transmission, etc., in the tractor chassis, the complete unit is removed and a spare is installed. Then the removed unit is made

ready to serve its part of exchange for the next "casualty".

It has been found by this method that a tractor that might be out of service for several days if the engine or part had to be repaired before the tractor could leave, can be made ready for service the same day and can depart on schedule the same evening. All engines and other major parts are interchangeable throughout the fleet, thus simplifying our parts stock and overhaul problems.

Preventive maintenance in this fleet is of the more-or-less standardized type, with periodical checks and inspection at 500, 1,000, 5,000, 10,000, 30,000 and 50,000 miles. No forms are used because only the two mechanics are involved, and they keep a "shop book" for their guidance and record.

That this system works is attested by our consistent schedule maintenance and absence of road failures. With new modern equipment, naturally, less complications are involved and every advantage is taken of this feature by our mechanical department. In addition, all possible parts are salvaged and rebuilt for further use. When engines are pulled for general overhaul, the work is done between times and in no case have we ever needed an engine that it was not available promptly.

Tires, which are all of the synthetic type, are given special attention. Before each departure they are checked for inflation, needed repairs, and for recapping. Any conditions not strictly normal are given immediate attention, with no chances of failure being taken. We have even gone to the extreme of sending a tire inspector along on the trip to Las Vegas to check on pressure buildup over the boiling desert floor.

By so doing we found that the inner tire of a dual wheel assembly would build up to a greater pressure than the outside tire, if both tires were inflated to the same pressure to start with. But, that if the inside tire were inflated to a *greater* pressure than the outside, the "build-up" would be less, and under actual operating conditions both tires would be operating under the same pressures.

Recapping of tires on this grueling desert mileage has never shown any definite results. Sometimes we get 5,000 miles; at others, as much as 20,000 miles. Part of it we believe is due to the type of workmanship. But during the war we have had to take the good with the bad. At times the bonding between the recap and the carcass shows up faulty and the recap takes off like a hoop. But we believe things are getting better, now that the war is over and manpower is getting easier.

On the matter of oil economy, each crankcase is checked at the end of each trip, slightly under 300 miles, and our drivers

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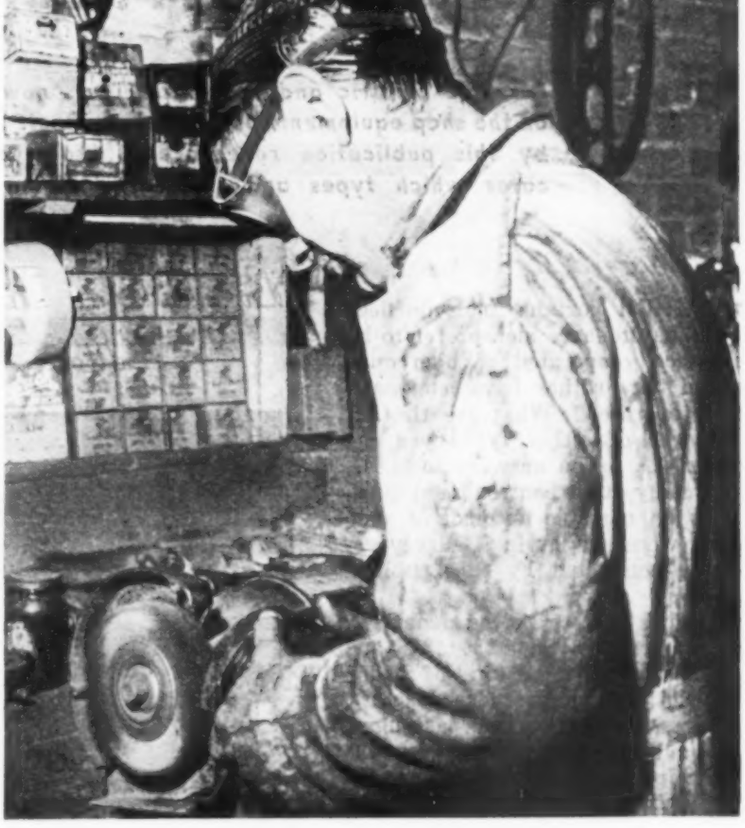
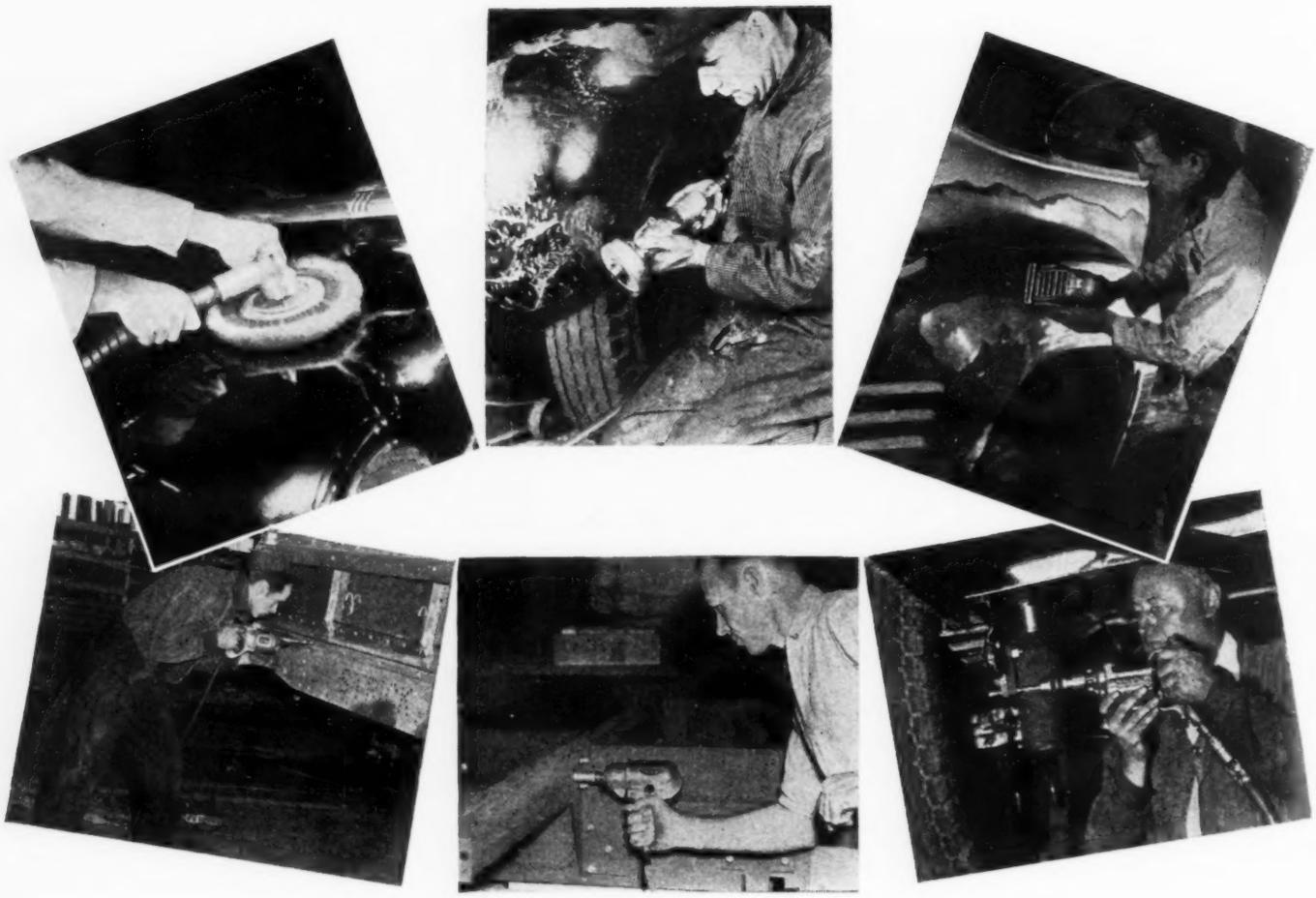
THE valves are refaced on this modern wet-type refacer at the engine service overhaul. In this fleet the overhaul is done in eight hours, without having to remove the engine from chassis.

THE wire brush on the bench grinder saves lots of time cleaning pistons in this fleet. A simple operation, but one that is well worth the price of an extra grinder, to avoid changing wheels.





ELECTRIC Vs. PNEUMATIC TOOLS

Portable Electric and Pneumatic Tools now occupy a prominent place on the shop equipment roster of every fleet. . . . A survey recently made by this publication reveals fleet usage and preferences—and indicates which types and sizes are gaining in utility and popularity.

By H. Clay Fischer, Editor

WHICH portable tools do fleet maintenance men prefer to be *electrically* operated? Which ones would they rather have *pneumatically* operated? What are the advantages of either type over the other? . . . The answers to these, any many other controversial questions on portable automotive shop tools were sought in a survey recently conducted by this publication.

Replies were received from 152 fleet operators in 32 states and Canada, operating a total of 26,364 vehicles, including trucks, tractors, trailers, buses, taxicabs, passenger-cars and miscellaneous vehicles; the participating fleet men are engaged in virtually every vocation that uses automotive vehicles. All of which is another way of saying that the results to this survey can, therefore, be considered quite a representative cross-section of fleet opinion.

The first question was simply sort of a census-taking operation, asking *"Which portable electric and/or pneumatic tools do you now have?"* The answers received have been summarized in graph form (see Figure 1). They indicate that virtually every fleet shop (149 out of 152) has one or more electric drills; that pretty nearly all of them have electric bench grinders (139 out of 152); and that the popularity of other portable electric tools in fleet shops includes valve

refacers, electric sanders, valve reseaters, polishers, flexible-shaft outfits, etc., in the order named. Low on the list were electric wrenches, electric screw-drivers and electric hammers.

It is interesting to note that although we did not include them in our check-list, (we had to stop somewhere), the following portable electric tools were also written-in by a number of fleet operators: electric saws, electric shears, electric heat guns and electric riveting guns; but not numerously. Perhaps if we had included them on our list, the number listed would have been greater.

And now we come to the pneumatic family. The graph (Figure 2) summarizes the numbers and types of pneumatically-operated tools being used in these 152 fleet shops when the survey was made. Here air-operated hammers show up most prominently, with 45 fleets (29.6%) listing pneumatic hammers, and 24 fleets (15.7%) listing pneumatic chipping hammers. Other air-operated tools were also checked, as the graph (Figure 2) indicates. Note that air-operated drills was also high on the list and that other pneumatic tools used by fleets include air-operated valve grinders, wrenches, sanders, grinders, etc. Not shown in the graph are a number of others that were written-in, including fender hammers, riveting guns and soldering guns.

It would be a delicate task to try to arbitrarily assert the reasons for this numerical lead of electric tools over pneumatic. Rather, we reasoned, let's see what the fleet men themselves have to say about it. So the next question was, "*Regardless of what you now have, which portable tools would you prefer to be operated electrically, and which to be operated pneumatically?*". . . . The answers we received have *not* been illustrated by a graph, but we will try to let you in on them in the following paragraphs:

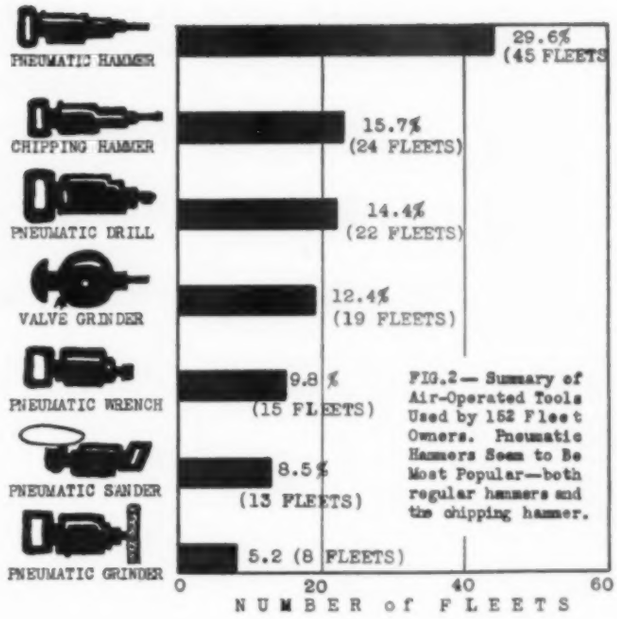


FIG.2— Summary of Air-Operated Tools Used by 152 Fleet Owners. Pneumatic Hammers Seem to Be Most Popular—both regular hammers and the chipping hammer.

Prefer Electric Operation: A total of 39 fleet men said that they would prefer to have *all* portable tools electrically operated. Five more said they'd like them all electric, with the exception of hammers. Those

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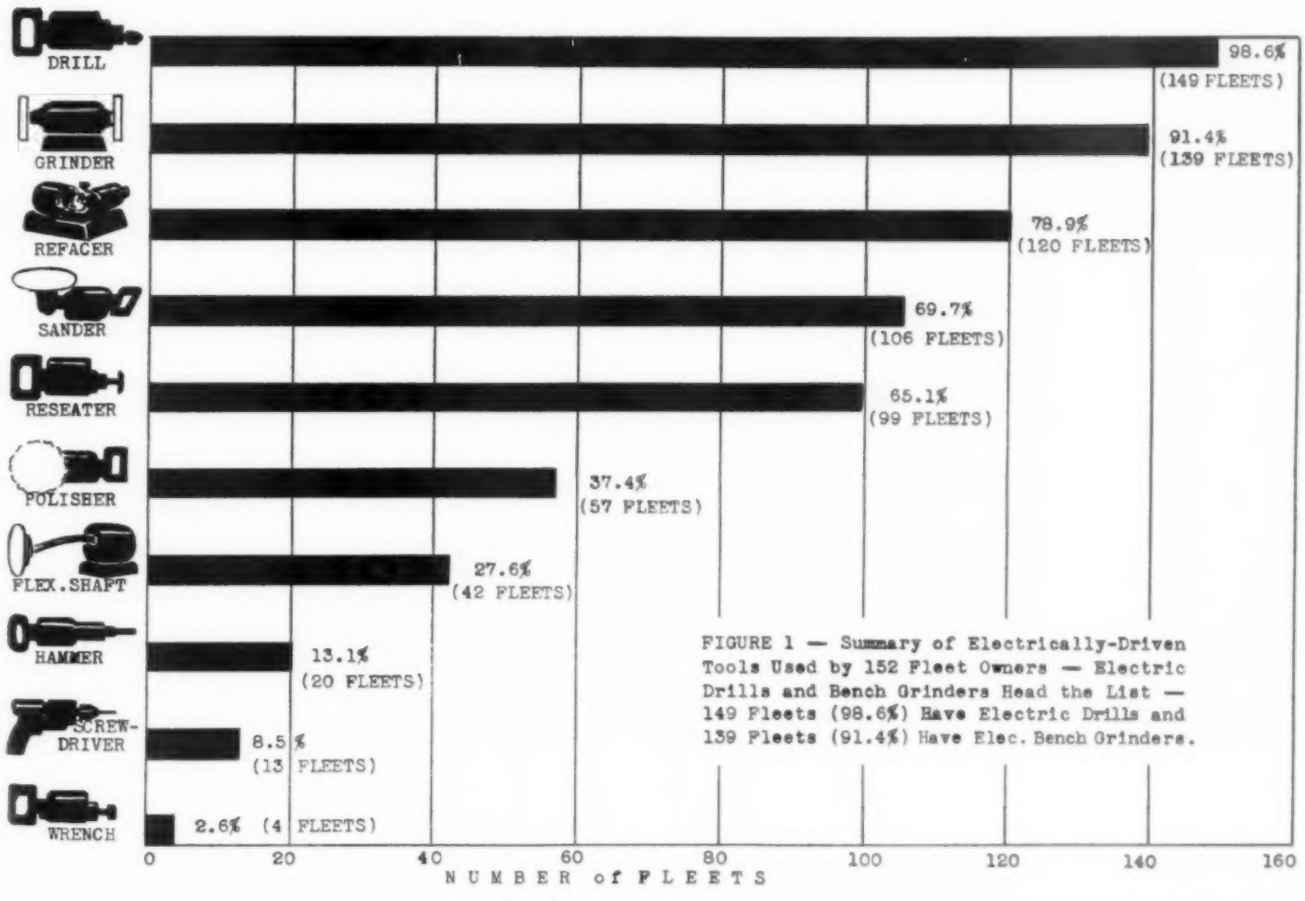

FIGURE 1 — Summary of Electrically-Driven Tools Used by 152 Fleet Owners — Electric Drills and Bench Grinders Head the List — 149 Fleets (98.6%) Have Electric Drills and 139 Fleets (91.4%) Have Elec. Bench Grinders.

A NEW "FLEET OWNER" SURVEY on PORTABLE ELECTRIC and

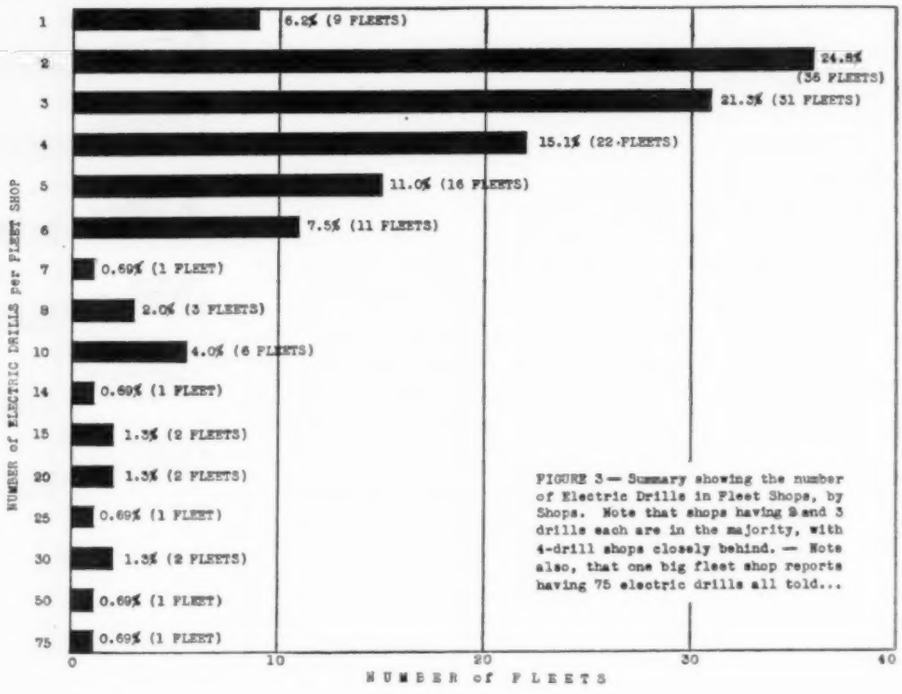

FIGURE 3 — Summary showing the number of Electric Drills in Fleet Shops, by Shops. Note that shops having 2 and 3 drills each are in the majority, with 4-drill shops closely behind. — Note also, that one big fleet shop reports having 75 electric drills all told...

were all of the direct answers received. However, another 36 operators listed certain types of tools which they prefer to be electrically operated; these totaled: Drills — 25; Bench Grinders —22; Valve Refacers—22; Valve Reseaters—22; Sanders — 20; Polishers — 10; Flexible-Shaft Outfits — 7; Screw-Drivers—3; Wrenches—1.

Prefer Pneumatic Operation: Only 3 fleet men said that they prefer *all* portable tools to be pneumatically-operated. However, 33 operators listed certain types of tools which they prefer to be air-operated; and these totaled: Hammers — 18; Wrenches — 10; Drills — 8; Chipping Hammers—7; Sanders—4; Valve Grinders —3; Bench Grinders—2; Riveting Tool—1. . . . There were another 22 fleet men who said that they do not prefer *any* of their tools to be pneumatically operated.

Lest you take the very last statement as an indictment of pneumatic tools, some explaining may be in order. Only 22 out of 152 fleet operators (that's but 14 percent) apparently remain "unsold" on the virtues of pneumatic tools. It's not bad, when you consider, first, the almost universal availability of electricity as a source of power; second, the greater number of manufacturers of electric tools; third, the greater effort put forth to acquaint users with the advantages of electric tools; and fourth, the greater advertising and sales effort in behalf of electric tools which has manifested itself during the past decade.

In other words, while it is not our job to "plug" one type of tool over another, it is only fair to all concerned, that we express the conviction that, all factors being considered, pneumatic tools seem to have made a *good* showing in this survey. This becomes more pronounced when it is recalled that this survey covered practically a universal cross-section of vehicle ownership, with light trucks predominating. And it is true that heavy-duty truck owners, particularly those in the public utility, contracting and similar fields, may be expected to be more conversant with air-operated equipment of various kinds through their *vocational* uses of same, such as road building, contracting, etc.

So, when pneumatic tools show up as well as they have done, with the law of averages on the other side, we would say that they are making excellent progress; that their virtues are becoming better understood; and that they show signs of giving some good, clean competition to their electrically-operated contemporaries.

It should not be construed, neither, that electric tools do not have their advantages. Rather than get into any controversy whereby we might tread on someone's toes, we'll let you in on what the participating fleet operators think of both types, since our next question asked for *"Reasons for preference of electric and/or pneumatic tools?"* . . . . Here they are:

Reasons for Electric Preference: All in all, there were more than 30 different reasons advanced as to why fleet men prefer electically-operated tools. These were chiefly centered around the fact that the universal availability of electric current makes them more portable; other reasons were based upon flexibility, light weight, ease of hooking-up, power being instantly available, low first-cost, adaptability for use by inexperienced help, economy, etc. Several fleet men pointed out that with electric tools no compressor is needed; no piping and no hoses; no danger of leaks; less noise; less dust raised; less vibration; and less general care and maintenance required. (Many operators mentioned *several* of these reasons).

Reasons for Pneumatic Preference: The fleet men who like air-operated tools, on the other hand, were able to think up 18 good reasons why they prefer them, the principal ones being that they are more powerful and can take overloads without damage to the tool. Other reasons included: Can control speed;

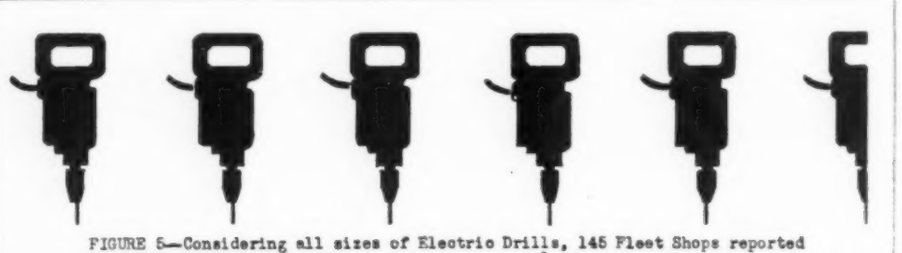

FIGURE 5—Considering all sizes of Electric Drills, 145 Fleet Shops reported having a total of 793 Drills, or an average of 5½ Drills per fleet surveyed.

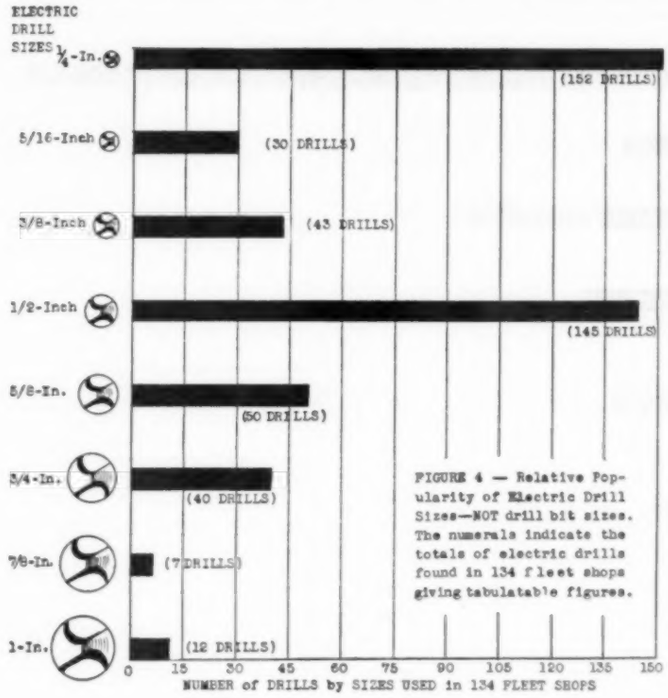

FIGURE 4 — Relative Popularity of Electric Drill Sizes—NOT drill bit sizes. The numerals indicate the totals of electric drills found in 134 fleet shops giving tabulatable figures.

longer life; less weight; simpler in construction; no danger of shocks, especially when wet-sanding; more powerful for hammers and riveters; and more adaptability for certain applications. A few fleet men said that the upkeep is lower and that you can run heavy tools cheaper with air than with electric power.

So there you have both sides of the controversy. It is a most difficult thing to do, at best, to try to explain both sides of an argument, without creating the impression that one side is being favored. Should anyone entertain the idea, from anything which we may have said thus far, that we favor one over the other, please try to believe that such a thing is farthest from our thoughts, and is necessarily not our function. After all, there are uses for both types of portable tools in automotive work and the object of this survey was to try to give you a concensus of fleet opinion (not Editor's opinion), which is what we have attempted to do. If you were to ask us point-blank, we'd say "Shut your eyes and take your pick". So much for that.

The remainder of this survey was devoted to more census-taking, to provide an index as to the number of drills required per shop; the popularity of the various sizes of drills; data on bench grinders, including wheel diameters; preference on sander types; and other related subjects. The answers to most of these questions will be found in the graphs that accompany this article. Let us run through a few of them, for your convenience:

Figure 3 summarizes the number of electric drills used in fleet shops (by shops) when this survey was made. Data was obtained from 145 (out of 152) fleets. Note that fleet shops having 2 and 3 electric drills each are high in the lead, with 3, 4 and 5-drill shops proportionately behind. Note also that one big fleet operator reports having 75 electric drills all told. Among the 145 fleet operators giving the number of electric drills used, the total came to 793 drills, in *all* sizes. This figures out to an average of 5½ electric drills per shop, among the fleets surveyed. Note that the 1-drill shops are but 6.2 percent of the total. Does this answer your question, "Do I need another electric drill?"

Figure 4 summarizes the relative popularity of electric drills by sizes. Although the artist has indicated twist drills in the graphs, he really should have showed drill sizes—or at least drill *chuck* sizes. (This graph does *not* refer to twist drills or drill bits). In looking at Figure 4 you will note that ¼-inch and ½-inch electric drills are the most popular, numerically speaking. The numbers of drills indicated represent the *total* found in 134 fleet shops which provided data, by sizes. There is much duplication, as many shops have more than one drill, as explained in Figure 3. However, this graph does indicate that ¼-inch and ½-inch electric drills are the sizes most commonly used.

Figure 5 is just a statistician's way of telling you that we found an average of 5½ electric drills per

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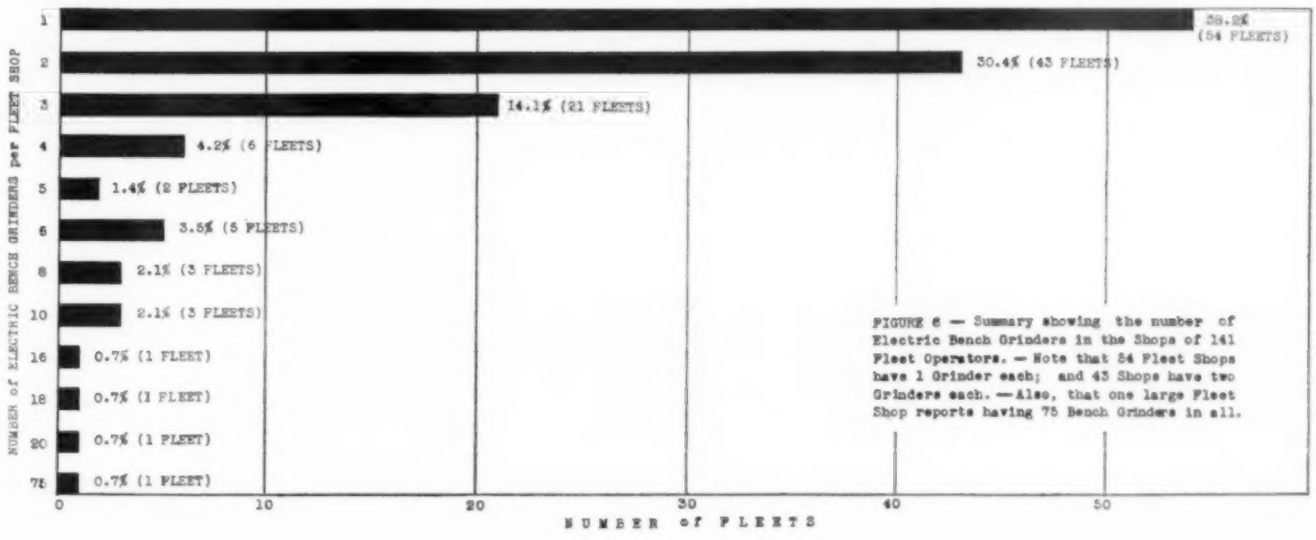


FIGURE 6 — Summary showing the number of Electric Bench Grinders in the Shops of 141 Fleet Operators. — Note that 54 Fleet Shops have 1 Grinder each; and 43 Shops have two Grinders each. —Also, that one large Fleet Shop reports having 75 Bench Grinders in all.

fleet shop surveyed, and that among the 145 fleets which gave the number of electric drills owned, the total was 793 drills (not drill bits) in all sizes, with an average of 5½ drills per fleet shop surveyed.

Figure 6 brings us to the subject of bench grinders. Data was furnished by 141 fleets, which own lots of grinders. Note that 54 fleets (38.2 percent) have but one grinder each; that 43 fleets (30.4 percent) have two grinders per shop; that 21 fleets (14.1 percent) have three grinders each; and so on. As was the case with electric drills, one large fleet operator reports having a total of 75 bench grinders scattered throughout his various shops.

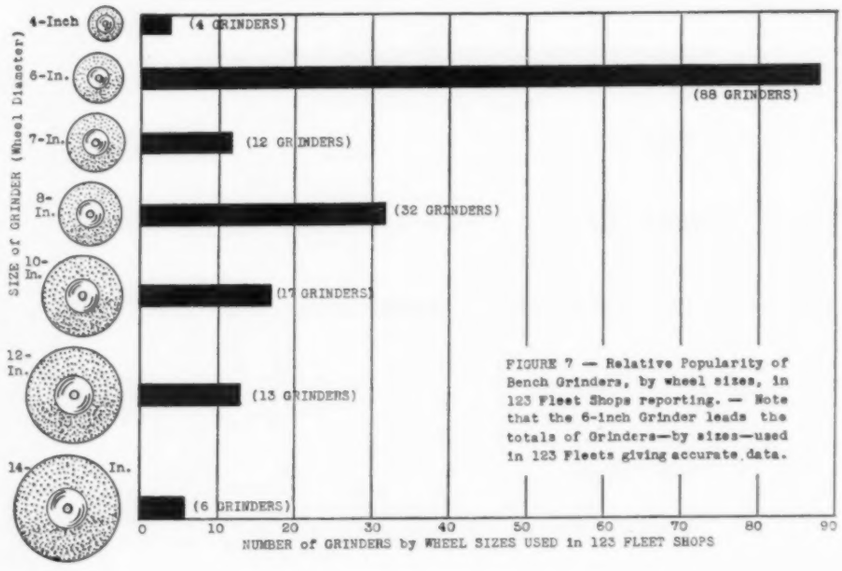


FIGURE 7 — Relative Popularity of Bench Grinders, by wheel sizes, in 123 Fleet Shops reporting. — Note that the 6-inch Grinder leads the totals of Grinders—by sizes—used in 123 Fleets giving accurate data.

Figure 7 was made up to indicate the relative popularity of bench grinders by wheel sizes. There were 123 fleet shops which gave tabulatable data on this, and quite a number of these fleet operators gave horsepower sizes of grinders, rather than wheel sizes, which was something that we did not anticipate. However, only wheel sizes were used in making up the graph, Figure 7. Note that the 6-inch bench grinder leads the parade—by far; and that the 8-inch grinder is next in numerical popularity. Among the horsepower answers (not illustrated), we find the ¼ h.p. size first, with 37 mentions; the ½ h.p. size next, with 17; and other sizes also mentioned, including 1/3, 1, 2 and 5 h.p.

Figure 8 is also the statistician's way of giving you data on grinder population. Among 141 fleets which answered part of the question on grinders, we found a total of 450 grinders, in various sizes, which figures out to an average of 3.2 grinders per fleet. (The artist says 3.5, but our figures indicate that the average is 3.2). We have found, from our many fleet contacts, that one bench grinder is not enough for even a small shop, since the grinder is a very versatile machine, that can be used for rough and fine grinding, tool sharpening, wire-brushing, buffing, polishing, etc. Sometimes it will be found cheaper to have an extra grinder handy, to save the bother of changing wheels for each different job. That, perhaps is why so many fleets have more than one grinder as pictured in the graph, Figure 6.

And now we come to the question of sanders, the first question asking *"What type of sander do you now have in your shop?"* . . . . Of the 111 fleet men who answered this question, 36, unfortunately, gave the make instead of the type. So these could not be included in the following tabulation: Disc-type—59; Moving-pad type—8; Belt-type—3; Angle-head type—2; Flexible-shaft type—2; Cylinder-type—1.

Another question asked *"Which type of sander would you prefer?"* . . . . Here the answers were pretty much on the same order, as follows: Disc-type—72; Disc or Pad-type—16; Moving-pad type—7; Disc or Belt-type—5; Belt-type—2; Any type—2. The balance did not answer. It is only fair to comment that the disc type has been on the market for a great many years, and that the moving-pad type is relatively new, comparatively speaking. As to which type is best—*you* will have to decide that; try 'em both and see for yourself; both have their good points.

There were a few more questions, having to do with future additions of equipment, post-war planning, etc. Without devoting too much space to them, since desires change from day to day, it was interesting to note that many fleets are planning to add both electric *and* pneumatic tool equipment to their shops; pretty nearly our whole list was included—some wanting one tool; others another. Six fleets said they planned to purchase a complete replacement of tools; 4 more promise themselves "complete shop equipment"; and 20 fleets said that they would add equipment, but did not specify just what.

Many fleet operators have told us that they get quite a kick out of the remarks that are penned-in on the questionnaires — the ones which we reproduce with these articles. So here is another list of remarks, penned-in on the blanks returned in this survey, just picked at random, without rhyme, reason or effort:

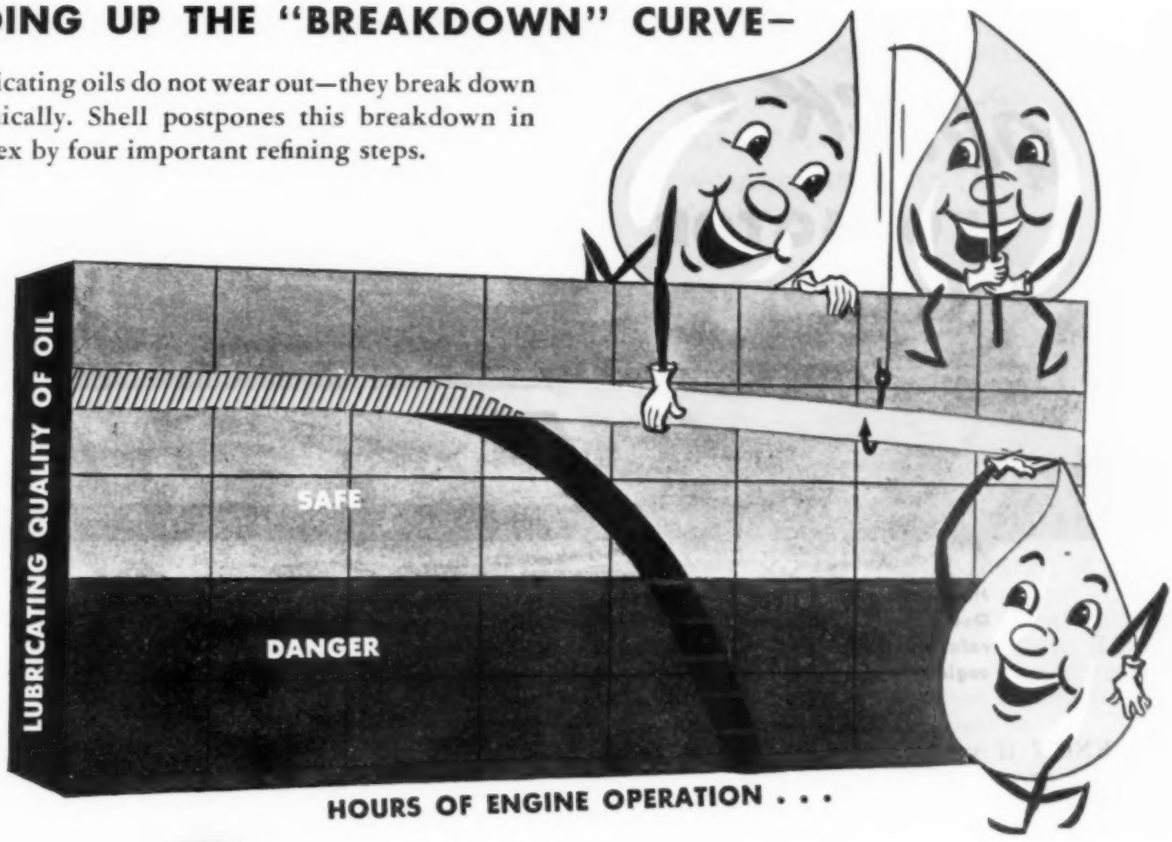
"We do not have a particular preference for electric or pneumatic. We are generally guided by jobber's advice."—*Dept. Store.*

(*Please turn to page* 174)

FIGURE 8 — Considering all sizes of bench grinders, 141 fleet shops reported having a total of 450 grinders, or an average of 3.2 per fleet.

HOLDING UP THE "BREAKDOWN" CURVE—

Lubricating oils do not wear out—they break down chemically. Shell postpones this breakdown in Talpex by four important refining steps.



THESE 4 TALPEX PERFORMANCE FACTORS SAFEGUARD HIGH-SPEED DIESELS

1.

Talpex is protected by the removal of the oil's natural liabilities—those oil components that readily oxidize. Shell does this by means of a special solvent-extraction process.

2.

Talpex is protected with an anti-oxidant that effectively serves to still further retard the formation of corrosive compounds and objectionable sludge and lacquer.

3.

Talpex has effective corrosion-preventive properties which are obtained by special refining methods. This means better performance and longer life of the engine's wearing parts.

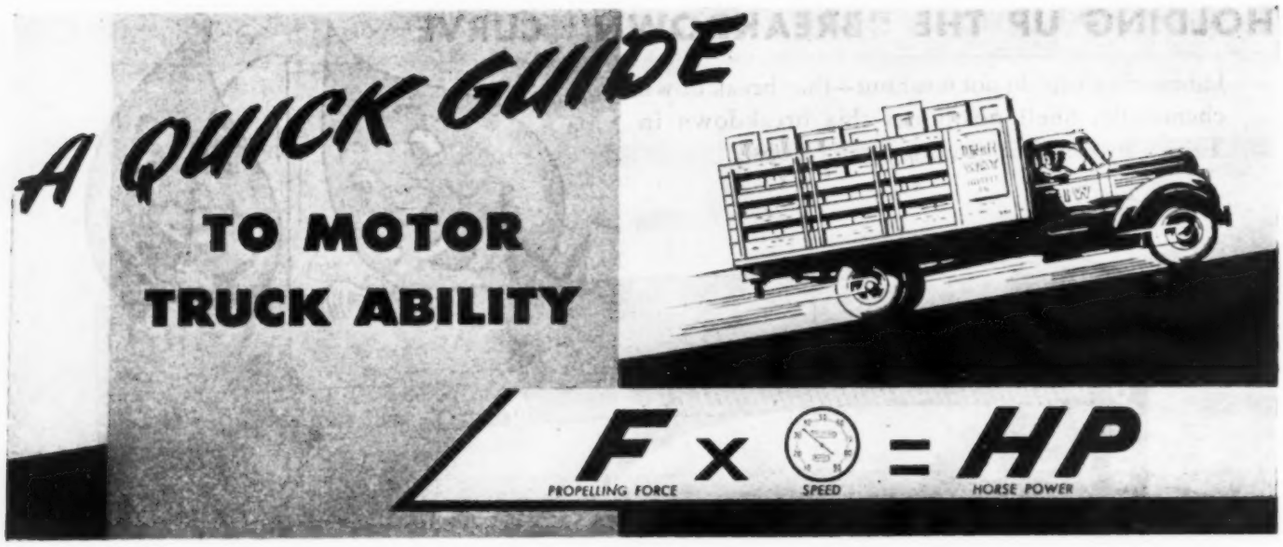
4.

Talpex has detergent properties that keep carbon, lacquer and rust particles from adhering to pistons, rings, valves and ports—keeps these contaminants "moving" until drained from the engine.

The Shell Lubrication Engineer will give you sound advice about the lubrication of *any* type of Diesel, whether slow, medium, or high-speed. Write for a copy of Shell's booklet, "The Fundamentals of Diesel Lubrication." Shell Oil Company, Incorporated, 50 West 50th Street, New York 20, New York or 100 Bush Street, San Francisco 6, California.

SHELL

SHELL DIESEL LUBRICANTS



How fast will my truck travel up a 2% grade? What size engine do I need for my run? Questions like these can be answered with a fair degree of accuracy by using the handy reference tables given here. If you want to utilize the maximum horsepower output of the engine, then make sure that your truck fits the job. The information here should help you.

By L. W. Fischer

Vice-President,
The Timken-Detroit Axle Company

TO KNOW if your truck fits the job or not, you must first know your loads and roads. The operator, the driver, the truck salesman, in fact, *everybody* must know what loads are to be carried. Add the payload to the ready-to-run weight of the truck or tractor-trailer and we have the gross vehicle weight, or gross combination weight, as the case may be. The distribution of this total weight determines the tire sizes.

Then we should know what grades are encountered on the run—how fast should the truck travel up the various grades, and what speed is desired on the level.

Knowing these principal facts, we can now find out how much horsepower the engine must deliver at the flywheel for any operating condition, or if we know the horsepower available at the flywheel, we can determine the allowable G.V.W. or G.C.W.

In Table I we show the horsepower required for each one thousand pounds of G.V.W. or G.C.W. at various vehicle speeds on good concrete roads with various grades. These horsepower figures are based on the recommendations of the Society of Automotive Engineers which were published in the S.A.E. Journal, January, 1940 issue. (See Table IV).

To move a given load requires a certain propelling force to start the load and to accelerate the load. This propelling force is determined by the engine torque in pounds-feet, multiplied by the gear reduction. The vehicle speed at which this propelling force is maintained is determined by horsepower. Horsepower is torque, multiplied by speed.

Naturally, an engine delivers its maximum horsepower output at high engine speed, and engines are usually governed at a point just short of maximum horsepower.

On any long haul, the running time must be held to a minimum for economical operation costs. Therefore, the engine should be capable of delivering sufficient horsepower at the flywheel to obtain the maximum vehicle speed which is desired.

The horsepower figures given in Table I point out some interesting facts that too often are not fully appreciated or perhaps not even understood. For example, if the horsepower delivered by the engine results in a maximum speed of 45 miles per hour on the level, then on a ½ percent grade the truck can only climb at a rate of 31 miles per hour. Similarly, on a 2 percent grade the maximum speed obtainable with this same horsepower is about 17 miles per hour.

Other comparisons can be readily made with this Table No. I, which may explain to some drivers why they cannot get the speed they think is necessary. It takes *horsepower*, and if the truck engine hasn't it, then there is nothing that can be done about it. Changing gear ratios cannot increase horsepower, do not forget that.

In Table I the horsepower required to overcome wind-resistance has been neglected. Table II, however, indicates approximate horsepower required to overcome wind-resistance for any loaded motor truck or trailer unit or when a van body is used.

To obtain the horsepower required to move the vehicle at any speed, we must add the extra horsepower for a given vehicle speed, shown in Table II, to the horsepower obtained from Table I.

If there is a head-wind, its velocity in miles per hour must be added to the vehicle speed in miles per hour, and the horsepower required at that total speed is the figure to use.

Now this is all very simple and consequently should be readily understood, but you may next ask what gear ratios are necessary?

To answer this question, let's look at Table III, which shows the revolutions per minute of the driving wheels when equipped with commonly-used tires.

We assume that you know what engine speed you would like to maintain, or you know the engine speed the factory advises as most desirable for sustained

FLEET MEN HAVE LONG FELT THE NEED FOR A SIMPLIFIED METHOD OF SELECTING THE PROPER TRUCK FOR THE JOB — THIS ARTICLE GIVES YOU A "SLIDE RULE" IN THE FORM OF A SIMPLE FORMULA AND A FEW HANDY REFERENCE TABLES

running. Then it is only necessary to divide the number of R.P.M. of engine speed by the number of wheel revolutions per minute for the desired vehicle speed, and the answer is the gear-reduction required.

Let's make a sample analysis to see how these tables may be used as a quick guide to motor truck ability. Let us assume that our truck-trailer combination has a weight distribution like this:

Truck front tires— 7,000 lbs.
Truck rear tires—18,000 lbs.
Semi-trailer tires—18,000 lbs.

G.C.W.—43,000 lbs.

The recommended tire size is 11.00-20, each of the four tires having a capacity of 4,500 lbs., or 18,000 lbs. total.

We would like to maintain a top speed of 55 M.P.H. on the level. There is a long pull up a ½ percent grade and there is another long pull with a 3 per cent grade. About half of the run is on level road and the balance is more or less up and down small grades; just average rolling country.

Now by referring to Table I, we find the required horsepower is 1.953 per thousand pounds G.C.W. In our case this means 43 x 1.953=84 horsepower. When running at 55 miles per hour, we require an additional 39 horsepower for wind-resistance, making a total requirement of 123 horsepower.

Now we want to check what road speeds can be maintained on the grades. Looking at Table I again we find that the horsepower per thousand pounds on a ½ per cent grade shows that the vehicle speed will be reduced to around 40 miles per hour. Deducting 15 horsepower for wind-resistance (see Table II) we have 108 horsepower available. Dividing this by 43 we get 2.5 horsepower per thousand, or around 45 miles per hour.

We want at least 20 miles per hour on the 3 per cent grade, so we find that at this speed we will require 43 x 2.52, or 108 horsepower. The wind-resistance is negligible at speeds under 30 miles per hour, so that we can easily make a 3% grade at 20 miles per hour.

In order to make the most of the available horsepower, we must have the best combination of gear-reduction.

First, we will check the high-speed operation. The engine we have in mind should run at 2400 R.P.M. maximum, which is the manufacturer's recommendation. Therefore, the axle ratio desired for top vehicle speed in direct transmission gear would be:

$$\frac{2400}{452} = 5.3.$$

452 is the number of revolutions made by an 11.00-20 tire at 55 miles per hour.

If the transmission in our truck has an overdrive—say .77—then the axle gear ratio could be:

$$\frac{5.3}{.77} = 6.8.$$

The desired gear-reduction on the ½ per cent grade would be

$$\frac{2400}{369} = 6.5.$$

(Please turn to page 76)

TABLE I —*NET HORSEPOWER REQUIRED per 1000 POUNDS GROSS WEIGHT of MOTOR VEHICLE OR COMBINATION of VEHICLES on GOOD CONCRETE ROADS

Per Cent Grade	VEHICLE SPEED — MILES per HOUR											
	5	10	15	20	25	30	35	40	45	50	55	60
Level	.178	.355	.533	.710	.888	1.065	1.243	1.420	1.598	1.775	1.953	2.130
0.5	.255	.510	.765	1.020	1.275	1.530	1.785	2.040	2.295	2.550	2.805	3.060
1.0	.330	.660	.990	1.320	1.650	1.980	2.310	2.640	2.970	3.300	3.630	3.960
1.5	.405	.810	1.215	1.620	2.025	2.430	2.835	3.240	2.645	4.050	4.455	4.860
2.0	.480	.960	1.440	1.920	2.400	2.880	3.360	3.840	4.320	4.800	5.280	5.760
2.5	.555	1.110	1.665	2.220	2.775	3.330	3.885	4.440	4.995	5.550	6.105	6.660
3.0	.630	1.260	1.890	2.520	3.150	3.780	4.410	5.040	5.670	6.300	6.930	7.560
3.5	.705	1.410	2.115	2.820	3.525	4.230	4.935	5.640	6.345	7.050	7.755	8.460
4.0	.780	1.560	2.340	3.120	3.900	4.680	5.460	6.240	7.020	7.800	8.580	9.360
4.5	.855	1.710	2.565	3.420	4.275	5.130	5.985	6.840	7.695	8.550	9.405	10.260
5.0	.930	1.860	2.790	3.720	4.650	5.580	6.510	7.440	8.370	9.300	10.230	11.160
5.5	1.005	2.010	3.015	4.020	5.025	6.030	7.035	8.040	9.045	10.050	11.055	12.060
6.0	1.080	2.160	3.240	4.320	5.400	6.480	7.560	8.640	9.720	10.800	11.880	12.960
6.5	1.155	2.310	3.465	4.620	5.775	6.930	8.085	9.240	10.395	11.550	12.705	13.860
7.0	1.230	2.460	3.690	4.920	6.150	7.380	8.610	9.840	11.070	12.300	13.530	14.760

*Based on 1- 90% efficiency of the drive line
2- 12 pounds rolling resistance per 1000 pounds gross weight
3- Formula — $H.P. = \frac{M.P.H. \times (12 + 1000 \times \%G)}{375 \times .90}$

Meet L. W. Fischer, the author of this article. Better known as "Larry", in the automotive engineering profession, Mr. Fischer is prominent in the Society of Automotive Engineers and is the author of many transportation engineering papers.

You will no doubt recall recent articles of his in this magazine — such as the one on Bolts and Nuts in January; the one on Shims last September; and the one on Gaskets which ran in August last year.

As a matter of cold fact, there are no very long stretches of level road in this country, and accurate measurements would find grades of ½ per cent and even more which do not appear noticeable to the eye, but result in a slight slowing-up of the motor vehicle. This fact should be kept in mind in considering the overall picture of motor truck ability.

On the 3 per cent grade the desired gear-reduction is:

$$\frac{2400}{164} = 14.5.$$

If the axle ratio is 5.3, then the transmission gear-reduction should be:

$$\frac{14.5}{5.3} = 2.75.$$

If the 6.8 axle ratio is used, then the transmission gear-reduction should be:

$$\frac{14.5}{6.8} = 2.14.$$

It is not always possible to get the best gear-reduction for each and every operating condition with standard mechanical transmission, even though a range of axle gear ratios is usually available.

This brings up the great advantage of the 2-speed driving axle, because these 2-speed double-reduction axles have a fast and a slow axle reduction, with the slow ratio about 1.3 times slower than the fast ratio.

The instant gear shift device in late model two-speed axles results in effortless shifting at the driver's will. "Gear splitting" is now a simple and easy operation which results in higher overall vehicle speed, because more suitable gear-reductions are made available.

If the transmission has 5 speeds, direct in 5th, with gear ratios of say,

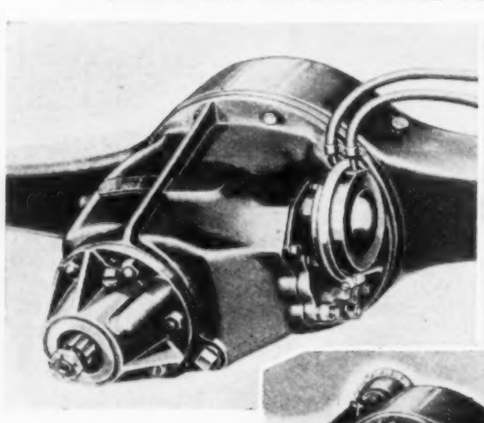
1.00, 1.6, 2.8, 4.5, 7.8

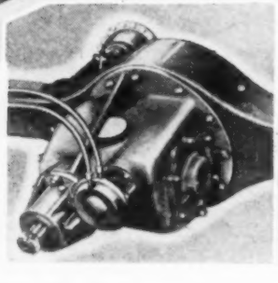
then with the use of the 1.3 gear-reduction provided in the two-speed axles, we will actually have these steps with respect to the fast axle ratio:

1.00
1.30
1.60
2.10
2.8
3.6
4.5
5.8
7.8
10.1

It is easy to see why this increased range of gear-reductions will make it easier to use a gear ratio most suited to get maximum vehicle speed for the engine horsepower available.

TWO-SPEED DRIVING AXLE SUGGESTED by the AUTHOR, WITH EASY POWER SHIFT





THE new vacuum power-unit is mounted parallel with axle housing on light and medium-duty axles. . . . On larger axles the power-unit is front-mounted, to avoid frame interference, and operates thru a ball-crank inside of housing, as shown in these photos.

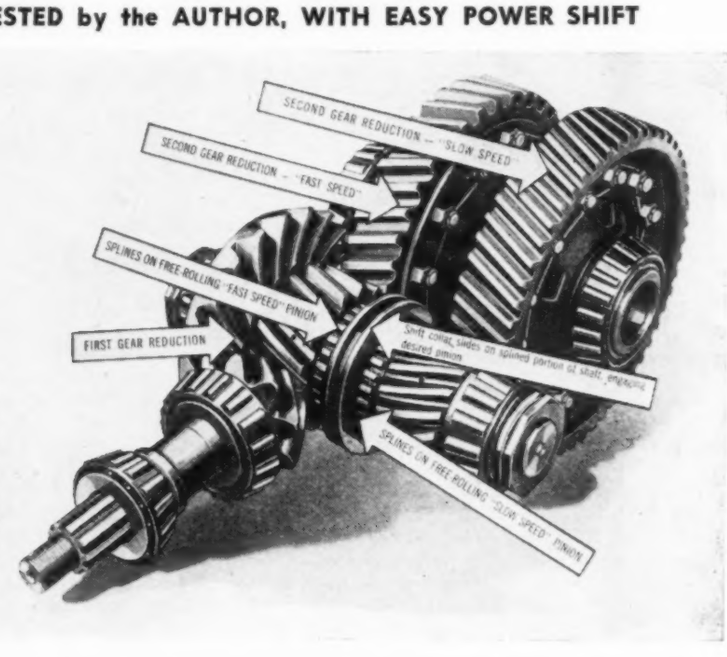

SECOND GEAR REDUCTION — "SLOW SPEED"
SECOND GEAR REDUCTION — "FAST SPEED"
SPLINES ON FREE-ROLLING "FAST SPEED" PINION
FIRST GEAR REDUCTION
SPLINES ON FREE-ROLLING "SLOW SPEED" PINION

TABLE II

Net horsepower required to overcome air and wind resistance* for average size van body on truck or trailer.

VEHICLE SPEED—MILES PER HOUR	5	10	15	20	25	30	35	40	45	50	55	60
APPROX. NET H.P. REQUIRED	—	—	1	2	3	6	10	15	22	28	39	51

*If driving against a head wind, add the wind velocity in miles per hour to vehicle speed and get required net horsepower at the combined speed.

TABLE III

Wheel R.P.M. of various size tires at various vehicle speeds.

Tire Size	VEHICLE SPEED—MILES PER HOUR											
	5	10	15	20	25	30	35	40	45	50	55	60
7.50-20	47	95	142	190	237	284	332	380	427	474	522	568
8.25-20	46	92	137	184	230	274	321	368	414	460	505	548
9.00-20	43	86	130	172	215	260	302	344	387	430	474	520
10.00-20	42	84	127	168	210	254	295	336	378	420	463	509
10.00-22	40	80	121	160	200	242	281	320	360	400	441	484
11.00-20	41	82	124	164	205	248	288	328	369	410	452	497
11.00-22	39	78	117	156	195	235	273	312	351	390	429	470
11.00-24	38	76	113	152	190	225	265	304	342	380	417	450
12.00-20	40	80	120	160	200	240	280	320	360	400	440	480
12.00-22	39	78	115	157	196	230	272	314	353	392	429	461
12.00-24	36	72	110	145	181	219	255	290	326	362	400	438

TABLE IV

Quoting excerpts from Report of S.A.E. Motor Truck Rating Committee. The recommendations of this Committee were endorsed by the Motor Truck Committee of the Automobile Manufacturers Association (A.M.A.)

The Motor Truck Rating Committee knows of no simple method of rating the ability of a vehicle which will express its ability precisely under all conditions. The two basic factors determining truck ability are gross weight and power as the recommendation of the United States Bureau of Public Roads, quoted in the preamble to this report, indicates. After careful consideration, the Committee is of the opinion that practical requirements can be met satisfactorily by using the ratio of these two basic factors—that is, gross weight and power—to rate ability. Accordingly the Committee recommends:

1. The potential ability of a motor truck (or combination) shall be rated in pounds of gross weight of truck (or combination) per brake horsepower delivered by the engine to the clutch or its equivalent.*

*The expression "clutch, or its equivalent" is used to make the Committee's recommendations applicable to constructions not using a clutch.

The Committee believes that a rating on this basis gives an index of the general level of ability of the truck (or combination) that is sufficiently precise for practical purposes. It does not, of course, provide a precise measure of ability under any particular conditions. However, in the case of a particular vehicle, where tire sizes, transmission and axle ratios, and the engine power curve are available, operators can approximate the performance of the vehicle under any set of conditions using the formulas in Appendix I.

APPENDIX I

ABILITY FORMULAS

GVW – Gross weight of vehicle (or combination), lb.

S – Road speed, mph.

HP – Horsepower delivered to clutch at road speed S in particular transmission ratio being used.

G – Grade, %

In the following ability formulas, a value of 1.2 lb. per 100 lb. of gross weight is used for rolling resistance. Power lost in overcoming friction between the clutch and the driving wheels is taken as 0.1 of the power delivered to the clutch by the engine and an efficiency factor of 0.9 has accordingly been incorporated in the formulas.

1. – $GVW = \dfrac{33{,}750 \times HP}{S(G + 1.2)}$

2. – $\dfrac{GVW}{HP} = \dfrac{33{,}750}{S(G + 1.2)}$ = Lb. per hp

3. – $S = \dfrac{33{,}750 \times HP}{GVW(G + 1.2)}$

4. – $G = \dfrac{33{,}750 \times HP}{GVW \times S} - 1.2$

ROAD-ENGINE SPEED FORMULAS

S – Road speed, mph.

RPM – Engine speed in revolutions per minute.

r – Tire rolling radius, in.

R – Total gear reduction = Rear-axle ratio × Transmission ratio.

5. – $S = \dfrac{RPM \times r}{168 \times R}$

6. – $RPM = \dfrac{168 \times R \times S}{r}$

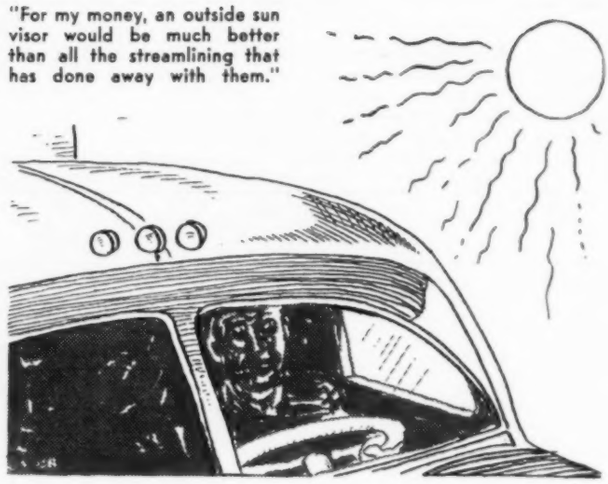
APPENDIX II

Pounds of Gross Vehicle Weight Which One Horsepower Delivered to Clutch Will Pull Up Various Grades at Various Speeds

Grade, %	Speed, mph															
	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
0.1		More										998	962	927	895	865
0.2		than									964	928	893	861	832	804
0.3		1000							976	938	900	865	834	804	777	750
0.4		lb.					1000	958	917	879	844	810	781	753	728	702
0.5						993	947	903	863	827	795	764	736	710	685	662
0.6					988	937	894	853	817	782	750	722	695	670	648	625
0.7				987	935	890	847	808	773	741	711	683	658	635	612	593
0.8			993	936	889	843	803	766	733	702	674	648	625	602	581	561
0.9		1000	945	890	845	802	765	730	698	669	642	617	594	573	553	535
1.0		959	903	854	808	768	730	697	667	639	613	590	567	548	529	511
1.1	978	917	862	813	772	732	697	665	638	611	586	562	542	522	504	488
1.2	937	878	827	782	740	702	670	639	611	586	562	540	521	502	484	469
1.3	900	844	795	750	710	675	643	613	587	563	540	519	500	482	465	450

"Some trucks hammer hell out of the driver and make him feel like he has ridden on a bucking broncho all day. . . ."

"For my money, an outside sun visor would be much better than all the streamlining that has done away with them."



AND NOW, SOME "GRIPES"

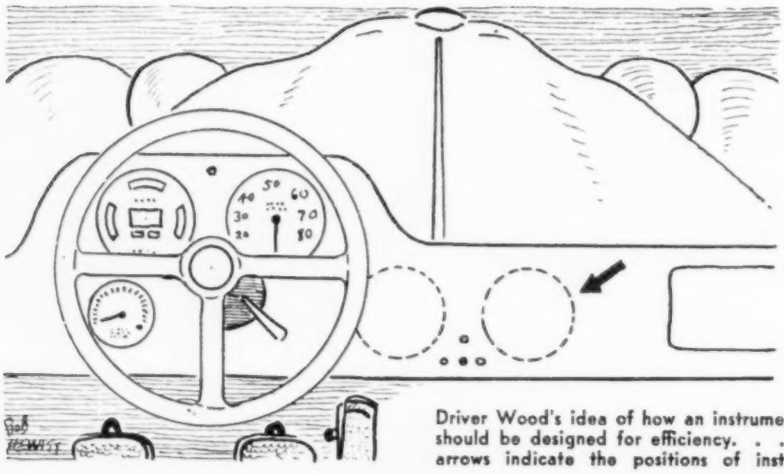
YES, wheel-spinners can spin "gripes", too, as this plaintive plea from a truck driver indicates. . . . It's not often that the driver gets a chance to air his views on future truck design. . . . We believe that this is the first time it's being done in print.—Editor.

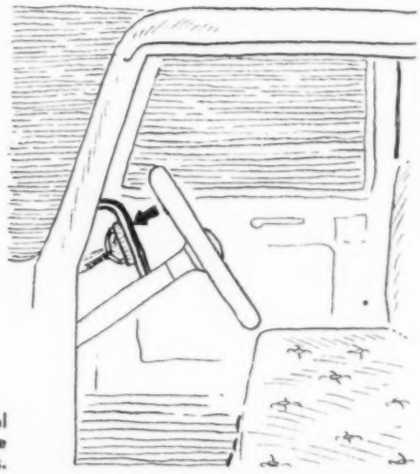
DURING the ten years prior to Pearl Harbor, the manufacturers of commercial vehicles made great strides in the building of all kinds of trucks, both light and heavy-duty. This period will also probably show the greatest increase in diversified uses and sales of trucks. Certain it is that to date it has been what might be called the "Golden Age" in trucking, both from the point of improvement in the units themselves and from the standpoint of public recognition of trucking as the most satisfactory method of getting large or small freight shipments to the customer, swiftly and cheaply.

During this time more and more attention has been lavished on trucks with the idea in mind of making them safer to operate from the driver viewpoint and from the viewpoint of those who must share the road with them. Much has been done along this line; in fact, much more than the average person realizes. As one who has driven different types for better than twenty years, I can see what has been done, and now I want to discuss what else might be done, and why, from my experiences.

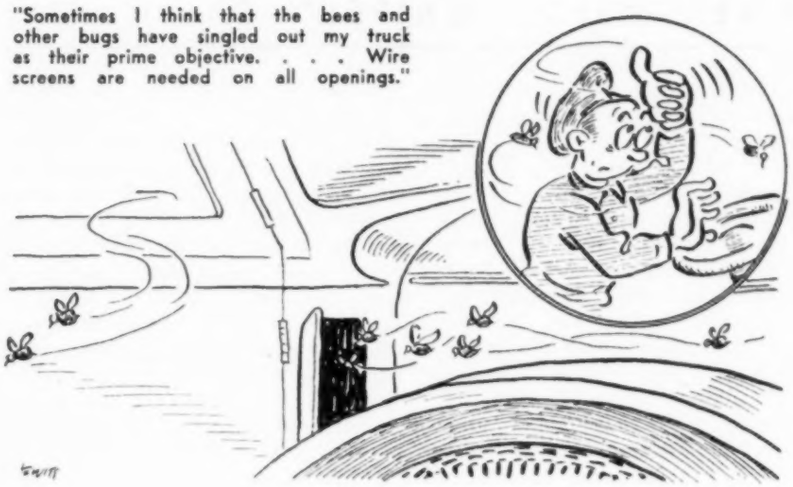
It is common knowledge in the trucking industry that fatigue on the part of the driver exacts its toll—and that fatigue can stem from several causes, individually or collectively. All trucks now have as standard equipment safety glass in all windows, as well as the windshield. This has been and still is a fine thing. However, there is now on the market a new glass (now in use by opticians) which has the wonderful faculty of killing all glare from the sun or from approaching headlights. Where could it be used to better advantage than in the windshields of all cars and trucks?

I know, from experience, that there are far too many people who are either too rude or thoughtless to dim their lights, unless your own are so bright that they are compelled to dim theirs for their own safety. This new glass, if it could be used, would go a long way toward neutralizing their criminal carelessness.





Driver Wood's idea of how an instrument panel should be designed for efficiency. . . . The arrows indicate the positions of instruments.


"Sometimes I think that the bees and other bugs have singled out my truck as their prime objective. . . . Wire screens are needed on all openings."

FROM A TRUCK DRIVER!

By S. F. Wood, Driver for

The MASON AND DIXON Lines INC.

There is one point on which I feel that manufacturers have really slipped a little, from the standpoint of safety. This is about the matter of sun visors. Every one is familiar with the double-jointed slab that fits up close to the head-lining over the windshield. But just stop and tear it down mentally. That thing is a distinct hazard.

After the constant use a trucker would give it (if it were on his truck) the joints get loose and shaky and the damn thing won't stay put, any way you fix it. Besides that, when it is in use it also cuts off a certain percent of your vision, and that is distinctly bad. It is as cumbersome and unwieldy as the devil and looks just what it is—a makeshift arrangement that found birth when the outside sun visor was done away with, in the interest of styling or fashion. But, for *my* money, an outside visor, properly styled and arranged, would be *much* better and it would not necessarily spoil the lines of the vehicle, if it were built into them.

Another item that would cut down fatigue and at the same time be instrumental in the promotion of more safety, is insulation. The insulation in use today may serve its purpose admirably in a car, but you climb into one of those huge highway freighters and start a day-long grind over mountains and long stretches of rolling highway, and the inside of that cab will get hotter than Dibby Dam, and that's four miles deeper than hell itself. Insulation should serve two purposes at the same time; namely cut out heat where it isn't wanted and cut down noise.

I can't see, for the life of me, why some insulation like Celotex which boasts great insulating ability with a minimum of bulk), could not be molded into forms to fit the cowls, fire-walls, tops, floor-boards, etc. In fact, every part where it could get in its licks. It is fireproof, heatproof and rot-proof. Installed with good, tight joints, it would do more to relieve driver fatigue than anything else.

Another helpful thing would be screens on all ventilators, (except door windows). Wire screen wings could be made to fit on the cowl doors, so that they could keep bees and other insects from getting to the driver, or his buddy in the sleeper behind him. This is a far more common hazard than one might at first think and I don't doubt that a peek at accident records would bear me out in this statement. At least, I hate to think that those critters have got my truck singled out as a prime objective.

The ventilators themselves also need a lot of improving so that they simply won't leak in rainstorms. Greater problems have been tackled and whipped, so why can't this one? I'll venture a guess that there isn't a new truck on our routes but what permits the driver to get wet feet or legs from the leaks that occur around the ventilator and windshield gaskets in rainy weather. This not only induces fatigue directly but can be ruinous to a driver's health in winter. Even if he can stay on the job while suffering from colds or rheumatism, his effectiveness is far from what it should be, to do his job safely and economically.

And, now we come to seats. Right here is found the reason why some

(*Please turn to page* 80)

● Meet Driver Wood, the author.

trucks hammer hell out of the driver on the slightest bump and others absorb the jolt in the seat and don't transmit it to the driver's anatomy.

We have trucks on the job that, after a hundred or so miles, make a driver feel as if he has been sitting on the hurricane deck of a bronco. Others climb out of their truck at the end of a run just as sassy as when they started. Jack Greene, for example, when he was on 497. They had to take that truck plumb out of the territory to get him off of it, in spite of the licking his seniority rights took when he was on it. The rest of us would hurt and pop and crack and ache all over and he would be disgustingly peppy. The reason could be found in those seats.

There may have been some good theories put *into* the building of these bucket seats but they sure as hell built all the comfort *out* of them. At the end of a run a good round cussing of those seats was good for free beers or a meal any time, if there were any experienced truck drivers present. There is the most widespread objections to that type of truck that you can find. It's a dandy work-horse, but needs a different saddle.

And finally let us take up the matter of instrument panels, with reference to grouping of instruments and their lighting. Most manufacturers make a real effort to have all the instruments grouped so they can all be read with one sweeping glance. If possible, they should be set so that the driver does not have to peek around the rim of the steering wheel or its spokes, or crane his neck way over to the middle of the cab, to get a true reading. A reading obtained at an angle may be way off from the reading obtained looking squarely at the dial.

It is most important that the panel lighting be right. A well-lighted panel will show up the graduation on the instrument faces very sharply, without any refracted light escaping into the cab to bother the driver. Graduations set upon a dull, jet black background would be best. They might be white with white indicators or points, but they should be a *dead* white, having no power to reflect the least beam of light. Or they might be of green within the safe operating range, and of red in the range that indicated trouble. But whatever colors are used, should be illuminated with panel lights that would show them up clearly and sharply, without being the least visible themselves. Any chromium on the instrument panel will reflect the least stray beam of light—most of the time right where it strikes the driver's eyes; therefore, I would eliminate all so called "gingerbread" in the cab. An instrument panel could be made attractive through design and colors, without the chromium.

Now, I know at first this may seem a lot of trouble over nothing but try this trick just once: Cut off your panel lights and cover any inside chromium so it can't catch any stray beam—then look out at your road. See how much brighter your headlights seem to be? Simply because your eyes don't have to look through one area of light to see what is in the other area ahead of you. Imagine how that could relieve eye-strain.

"THE present visor is a double-jointed slab that gets loose and shaky, and won't stay put."

These things, coupled with good tight instrument housings, so that no dirt and dust could get in on the face of the instruments, or the inside of the glass, would be of inestimable aid to the driver. Especially in murky weather, when his vision can be none too good at best, and he can't spare but a split second to glance at his readings.

The sketch appearing at the bottom of the first page of this article is the writer's idea of what a good instrument panel on trucks should be like. It is copied, somewhat, from our White panel trucks, but with a different arrangement of the instruments. This would seem to be practical only with the lighting mentioned above; otherwise it would cause more glare than even the present panel does.

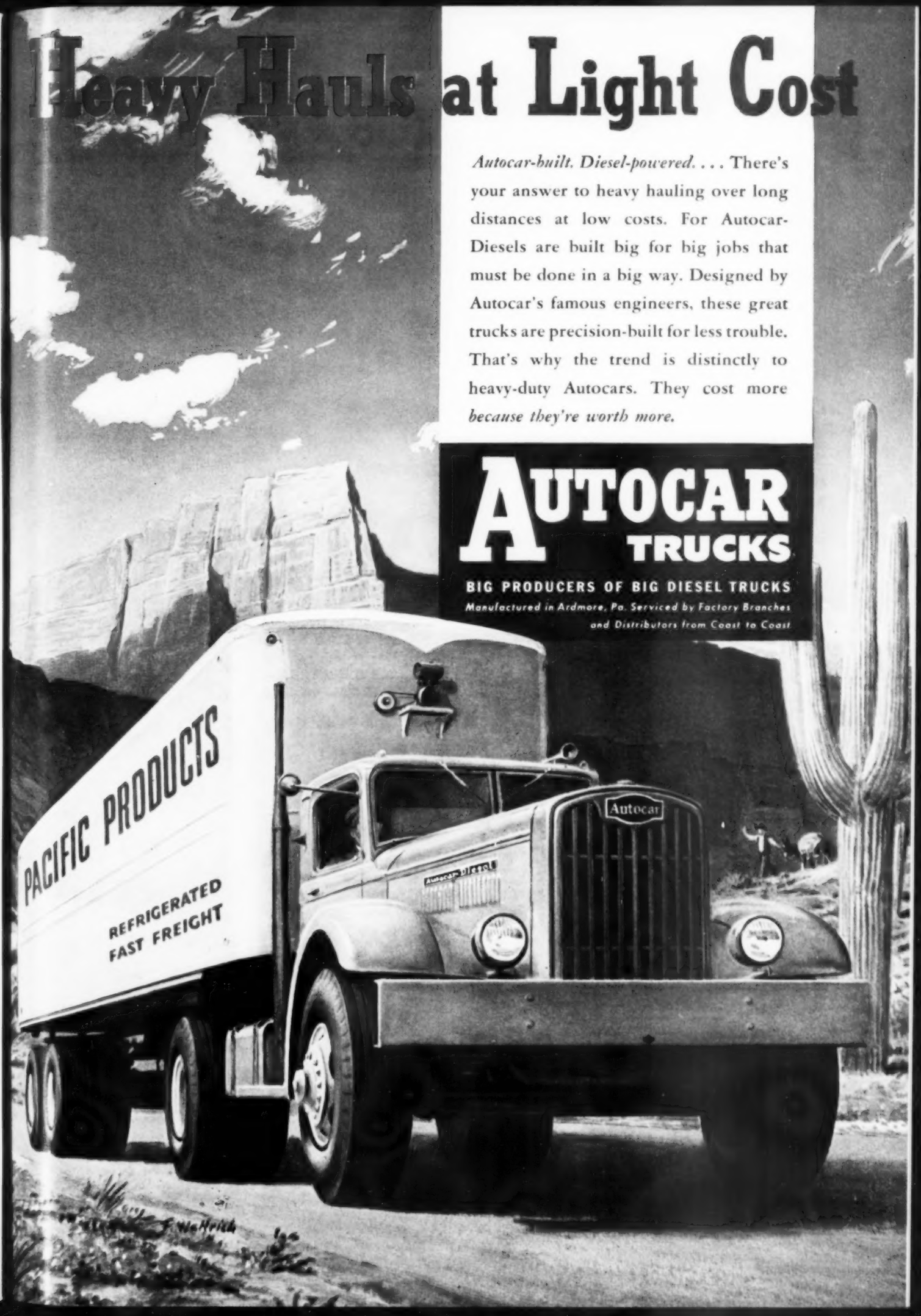
The sketch which accompanies it gives an idea of how the raised portion of the panel would look. The spoke arrangement of the steering is different, so as to give a clear view of the various readings. The windshield space which reveals hood and fenders is wasted, anyway, so why not an arrangement like this, which puts the instruments where they really can be seen?

The instruments could be mounted in the raised portion of the panel that could be unscrewed from the main panel for rapid servicing of any defective instruments. Any rigid tubing, etc., leading to the rear portion of this panel, could have some slack and also flexible sections in them.

So far as I can see, this arrangement looks fine, but of course, there may be some engineering "bugs" in it that I mightn't be able to detect. Nevertheless, I've looked at the space in my cab from every angle, and have measured it coming and going, and I can't see why this idea won't work out. What do other drivers think, I wonder?

I don't want to leave the impression that nothing has been done to improve our trucks. There have been wonderful improvements in them. We have plenty of power for the jobs, wonderful brakes, finger-tip steering and an unbelievable amount of good, serviceable mileage built into them. But these things I've mentioned are real things that materially affect the safe, profitable handling of these trucks. They would pay for themselves in the elimination of unnecessary fatigue and resultant wrecks, and after the preliminary work to inaugurate them in the manufacture of the vehicles they should not increase the price noticeably.

I know that if I were buying a truck with the idea of driving it myself, I would give marked preference to the equipment that would help me do my job safer, by having these improvements on it.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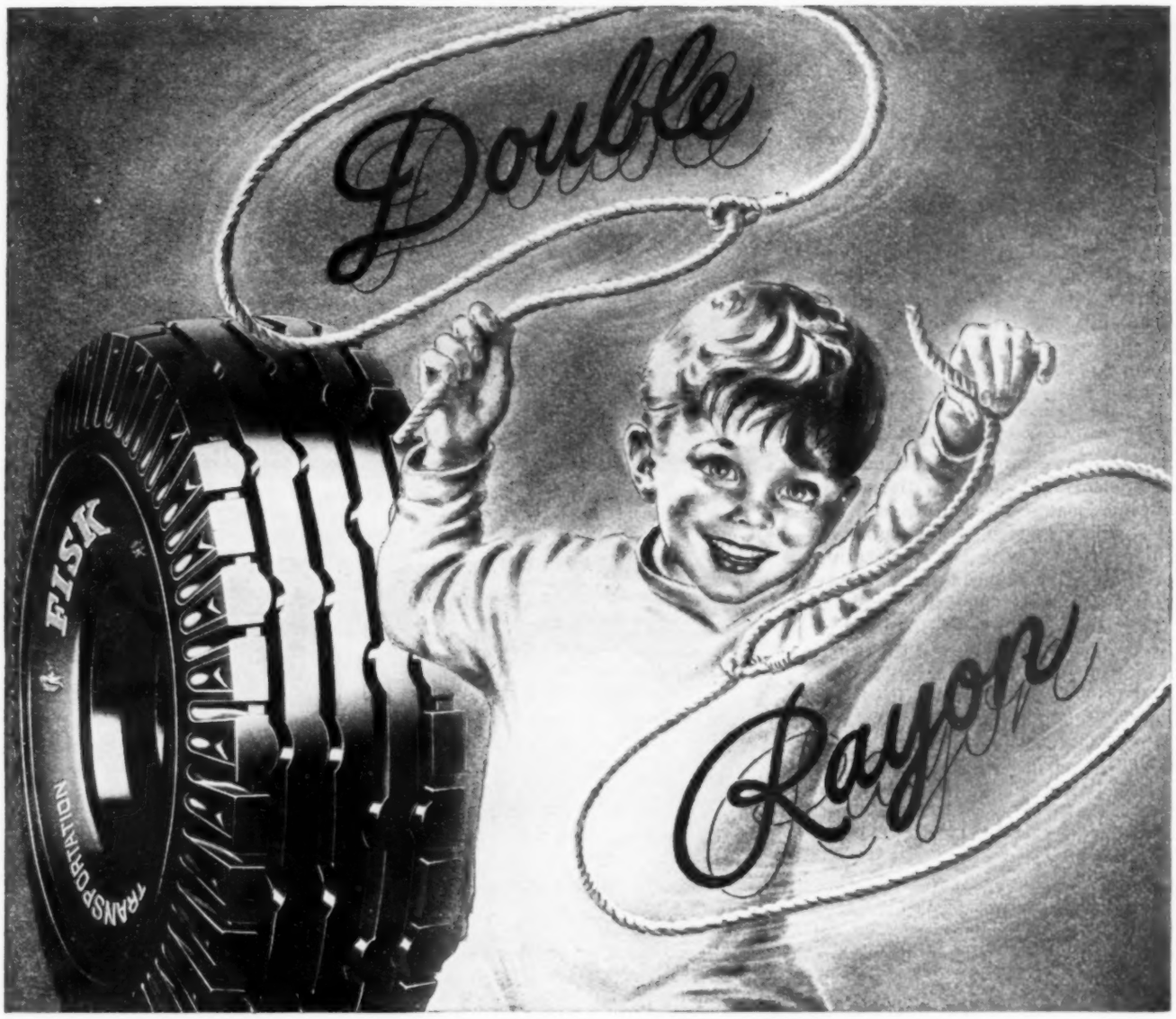

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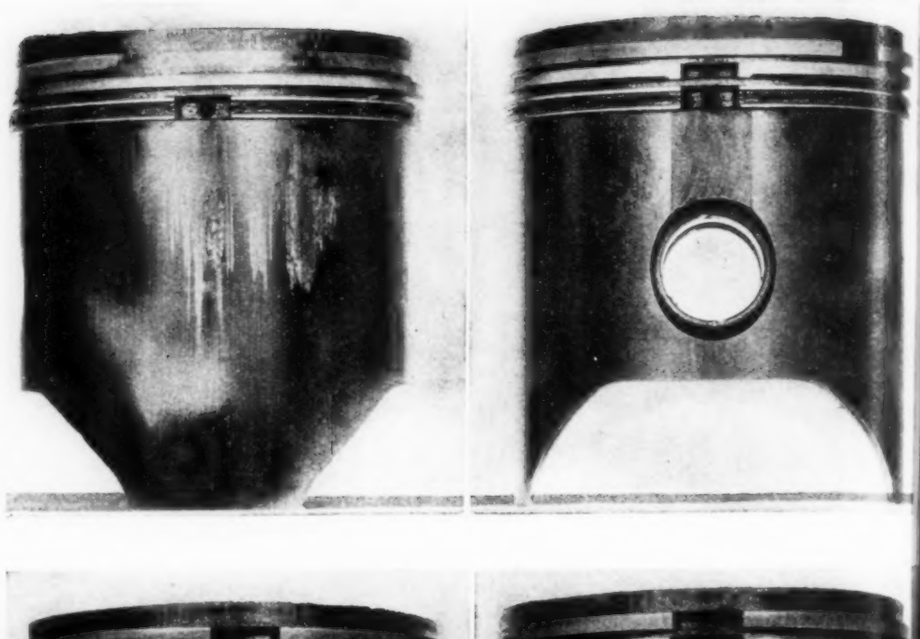


Showing pistons from a Chevrolet Deposits Test. Above are front and side views of a piston from a test run on a straight mineral SAE 20 motor oil. Below are front and side views of a piston from a test run using the same oil, plus an anti-oxidant.

DATA on LUBRICATING OIL

By C. W. Eklund,
Beacon Research Laboratory,
Technical & Research Division,
The Texas Company, New York, N. Y.

THE story of additives in lubricants is not new, but their use in lubricating oils to any great extent was not a major consideration in this country until the last decade. It was during that period that the Diesel engine, which had formerly been used only as a large, low-speed prime mover for power plant and marine service, increased in popularity when the smaller sized medium and high-speed engine was developed for use in tractors, trucks, buses and industrial applications.

Along with the many changes and improvements in mechanical design brought about by these new engines, came lubrication difficulties which had to be overcome by the oil refiner with the cooperation of the engine manufacturer. These difficulties, such as ring sticking and piston scuffing, were remedied by the use of additives in the lubricating oil. The name given to this first type of Diesel oil additive was "detergent". Typical of this improvement was the additive oil developed for use in the Caterpillar Diesel engine about ten years ago.

HEAVY-DUTY MOTOR OILS: Improvements in lubricants did not stop with the development of "detergent" oils, however. Further changes in engine design created additional problems, such as oil oxidation and bearing corrosion, which had to be overcome by the lubricating oil technologist. During the years directly preceding and including World War II, great strides were made in developing oils which would perform satisfactorily under the severe conditions encountered in these new and improved engines.

Gradually the "heavy-duty" motor oil and Diesel oil came into being. In addition to the "detergents" used in the Diesel oils of ten years ago, heavy-duty motor oils contain other additives, such as anti-oxidants and anti-corrosives, designed to greatly improve the performance qualities of the base oil. Heavy-duty oils are recommended today for use in all high-speed, heavy-load equipment, such as buses, trucks, and tractors equipped with diesel or gasoline engines.

WHAT ARE ADDITIVES? Before proceeding further, it is well to find out what is meant by the word "additive". A lubricating oil additive may be defined as a chemical compound which either imparts new properties to an oil or else improves those properties which the oil already has.

While unquestionably the ingredients of additives are chemical compounds, many commercial additives are mixtures and sometimes the exact chemical structure of the active ingredients is uncertain.

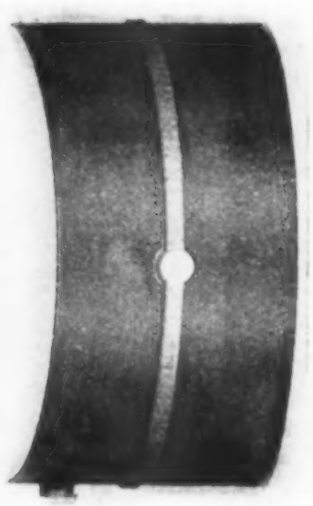
As a rule, rather low concentrations of additives, in the range of 0.01 to 5.0 percent, are sufficient to achieve the desired results. All lubricating oil additives may be divided into two major classes, as follows:

(1) Those which are useful for their properties as associated with the phenomenon of oil oxidation, such as anti-oxidants, anti-corro-

JUST WHAT ARE ADDITIVES?—WHY ARE THEY USED?—IN THIS ARTICLE WE PRESENT, FOR THE FIRST TIME, A SIMPLE EXPLANATION OF OIL ADDITIVES—AND IN LANGUAGE THAT ANY FLEET SUPER CAN EASILY COMPREHEND.

ADDITIVES . . .

Showing a corroded bearing, due to the use of an uninhibited oil.



Bearing surface indicating the benefits of using anti-corrosive additive.

sives, detergents and dispersants.

(2) Those which are added to an oil to improve some physical property of the oil, such as viscosity-index, pour-point, film-strength, rust-protection, and foaming characteristics.

ADDITIVES HERE TO STAY: As mentioned above, heavy-duty motor oils must provide good lubrication under extremely severe conditions. Oils of this type containing carefully selected additives have proved in service the prediction of the research laboratories as to their protective ability under heavy-duty engine service.

Since additives have done such a remarkable job in improving both the chemical and physical properties of heavy-duty motor oils, there is a definite trend at the present time to incorporate similar materials in oils used for lubricating other types of equipment, including aircraft engines, automobiles, railway Diesels, and turbines. If the type and number of engine developments which have occurred during the past ten years is any indication of what will happen in the future, it is safe to assume that the importance of lubricating oil additives will continue to grow.

OIL OXIDATION: Various factors enter into the failure of a lubricant to do its job, but the major cause of oil deterioration is oxidation. Any lubricating oil which is exposed to oxygen (or air) at any temperature will eventually oxidize. The length of time before this takes place and the extent to which it occurs depends on a number of factors including temperature, amount of oxygen and catalytic metals present, and the ability of the oil to withstand oxidation. The products of oxidation are numerous. Many of these are acidic which ultimately lead to bearing corrosion.

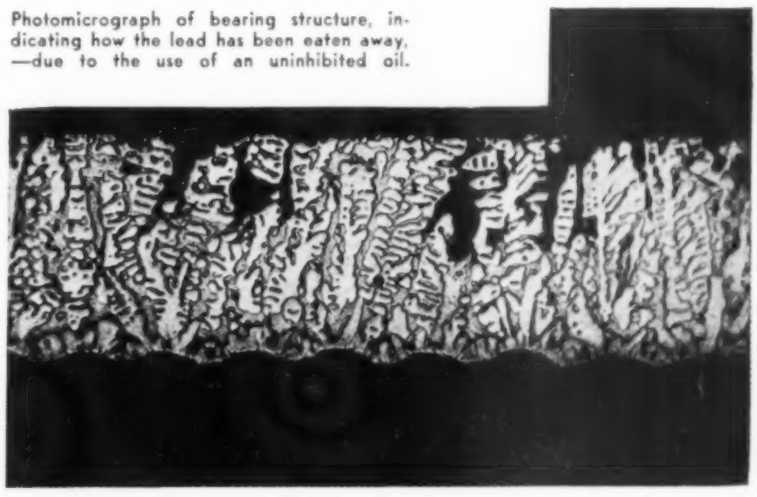
Prolonged oxidation of the oil results in the formation of sludge which is so often the cause of clogged oil lines, filters, and screens. The oxidized materials may, under high temperature conditions, link together, or polymerize, to form varnish and lacquer on pistons, cylinders, and other engine parts. All of these oxidized products tend to lower the efficiency of the engine and quite often lead to engine failure. As implied above, oxidation is promoted by the catalytic effect of certain metals. Iron and copper are probably the worst offenders of this type encountered.

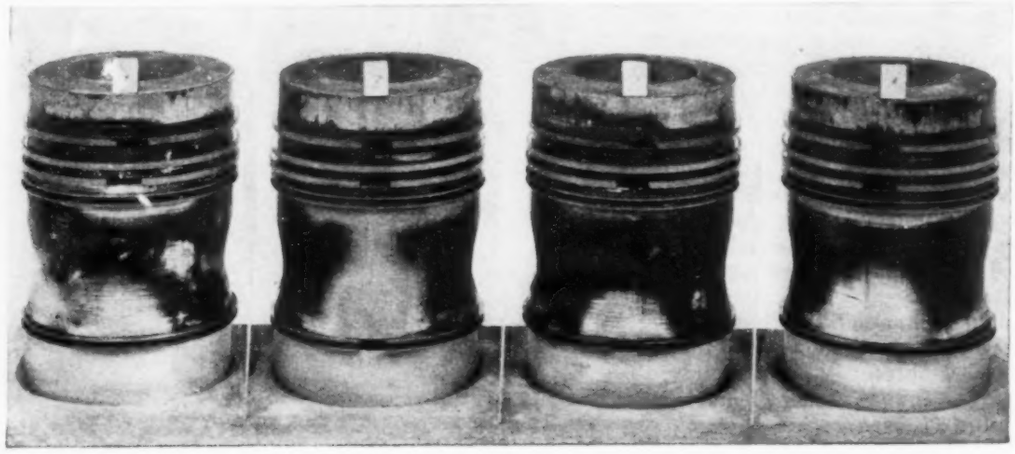
ANTI-OXIDANTS: Additives which increase the resistance of an oil to oxidation are called anti-oxidants. In general, anti-oxidants are organic compounds containing sulfur, phosphorus, or nitrogen, such as organic amines, sulfides, hydroxy sulfides, and phenols. Metals, such as tin, zinc, or barium, are also often incorporated in the additives to improve their properties. The anti-oxidant greatly decreases the amount of oxygen taken up by the oil, thereby reducing the formation of acidic bodies, etc., and prolonging the life of the oil.

Just exactly how these materials

(*Please turn to page* 84)

Photomicrograph of bearing structure, indicating how the lead has been eaten away, —due to the use of an uninhibited oil.





A set of pistons from a Caterpillar D-4400 Test, showing performance of poor oil. Compare with pistons illustrated below.

function, however, is not too well understood, but there is some evidence that the additive becomes oxidized in preference to the oil. Eventually, therefore, the additive becomes depleted with subsequent oxidation of the oil itself. For this reason, when operating any equipment under conditions such that oxidation can take place, periodic oil changes should be made, even though the new oil may contain an excellent anti-oxidant.

Since engine evaluation of lubricants is costly and time-consuming, a number of bench tests have been developed to determine the relative merits of anti-oxidants. Data illustrating anti-oxidant action in one such bench test are given as follows:

(a) When no additive was used, 300 units of oxygen were absorbed.

(b) When 1 percent of a phenol additive was used, 219 units of oxygen were absorbed.

(c) When 1 percent of a phosphite additive was used, 105 units of oxygen were absorbed.

(d) When 1 percent of an amine additive was used, 89 units of oxygen were absorbed.

The test procedure consists of oxidizing a sample of oil for forty hours at 338° F. The amount of oxygen absorbed by the oil during that time is recorded. In addition, the oxidized oil is subjected to various chemical and physical tests, such as viscosity, neutralization number and amount of dissolved and undissolved sludge, in order to determine the degree and type of oxidation which has taken place.

Data such as these show the relative ease of oxidation of the base oil and the inhibited oils and indicate to the petroleum chemist which type of additive will most effectively prolong the life of the oil.

Bench tests of the type mentioned are very helpful in giving an indication of the anti-oxidant properties of additives. It should be emphasized, however, that they do not eliminate the necessity for full-scale engine tests, since there are numerous factors in engine operation affecting the oxidation of oils which cannot be satisfactorily reproduced in any bench test.

ANTI-CORROSIVES: With the continuation of improvements in automotive, Diesel and aircraft engine design permitting the development of more power for the equivalent size and weight engine, new materials were necessary to withstand the higher stresses imposed. Chief among these was the improvement of bearings. The demand for greater load-carrying capacity and higher fatigue resistance fostered the development of bearing metals other than babbitt; i.e., copper-lead, lead-plated silver, cadmium-silver, and cadmium-nickel alloys.

It was soon found, however, that the usual well-refined uninhibited oils could be very corrosive to these bearings, especially at the high temperatures obtained in automotive, aircraft, and high-speed Diesel engines. Corrosion of bearings is generally attributable to a reaction between the acidic products of oxidation and one of the constituents of the bearing metal.

(*Please turn to page* 86)

A set of pistons from a Caterpillar D-4400 Test, showing performance of a satisfactory, heavy-duty detergent type of oil. Compare with pistons illustrated above.

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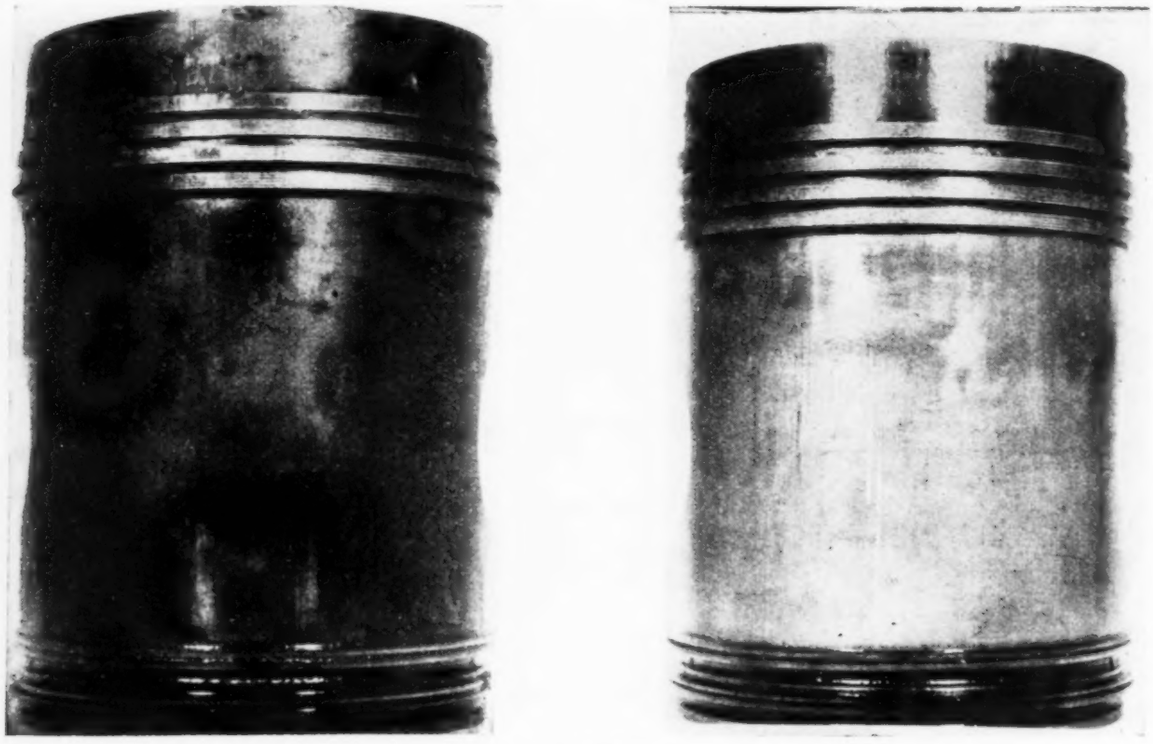
Certain heavy-duty oils, due to the type of detergent additive used, will turn dark in color almost as soon as put into the motor. Where such oils are used, filters are more essential than ever before and cartridges must be changed more frequently. Follow the advice of your oil company.

FRAM OIL & MOTOR CLEANER

The Modern Oil Filter



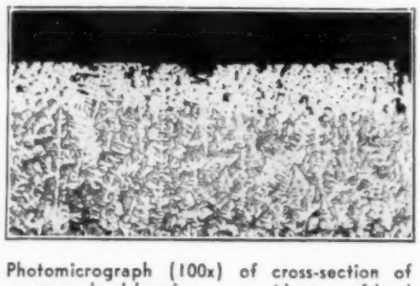
Comparison of pistons from General Motors Diesel 500-hour test. Note condition of piston on ordinary motor oil shown at left, compared with piston on heavy-duty detergent type oil shown at right.

For example, the acids formed by the oxidation of the oil will attack the lead in copper-lead bearings, taking it into solution and leaving a porous copper structure which will eventually crumble and break away.

Bearing corrosion may be controlled either by inhibiting oxidation completely so that no acidic bodies are formed (which is indeed a very difficult thing to do) or by laying down a protective film on the surface of the bearing so as to prevent the acids from reaching the metal. Materials which function by forming such a protective coating are known as anti-corrosives or corrosion inhibitors. Compounds containing active sulfur, phosphorus, or nitrogen show the most promise in this respect. Materials containing sulfur seem to be especially effective due to their ease in forming protective films. These anti-corrosives may take the form of organic sulfides, phosphites, metal salts of thiophosphoric acids, and sulfurized waxes, to name a few.

Anti-Corrosives Also Act As Catalyst "Poisons". It should be pointed out that anti-corrosives by virtue of their film-forming properties may also function as "poisons" for other metal surfaces in an engine. As a result, since the catalytic effects of the metal parts are decreased, the degree of oil oxidation is reduced materially. It is obvious, therefore, that when anti-corrosives are used in conjunction with anti-oxidants, bearing corrosion is reduced, while at the same time the life of the oil is extended more than if an anti-oxidant were used alone.

DETERGENTS: The dictionary defines the action of detergency as the cleansing or purging away of foul or offending matter. As mentioned previously, detergents were the first type of additives to be used in Diesel engines back in the '30's for the prevention of ring sticking and piston scuffing. The term detergent has since been used to classify additives which have the property of preventing the build-up of any deposits, or removing those already formed (be it sludge, varnish, lacquer, or carbonaceous products), which interfere with the efficient operation of internal combustion engines. These materials, which originate from oil deterioration as well as from combustion chamber blow-by, are a considerable problem, particularly in heavy duty equipment.

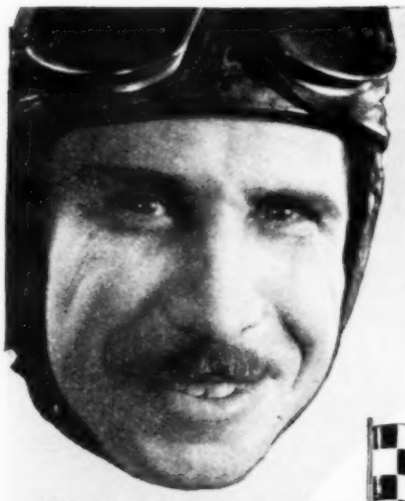


Photomicrograph (100x) of cross-section of a copper-lead bearing. . . . Absence of lead (gray area) at surface indicates corrosion.

Various metallo-organic compounds such as phosphates, phenolates, alcoholates, naphthenates, and sulfonates have been found very useful for this purpose. At one time the belief existed that only certain soaps or salts of the alkaline earth metals (calcium, barium, magnesium, and strontium) were effective as detergents. Later developments, however, have revealed that high molecular weight soaps or organic salts of a number of other metals, such as tin, and cobalt, also possess this desirable property.

The exact mechanism whereby a detergent functions is not too well understood but it may involve either one, or both, of the following preventive actions, in

(*Please turn to page* 88)



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addition to the possible cleansing action usually attributed to it:

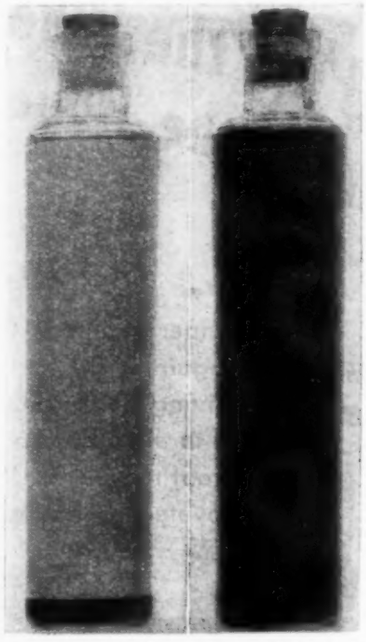
1. Detergents may act as oxidation directors so as to cause soluble oxidation products to form, rather than oil insoluble ones.

2. A chemical reaction may take place between the detergent and the potential lacquer and sludge-forming molecules, which prevents them from becoming insoluble materials to be deposited on various engine parts.

Since these additives may function so as to prevent rather than remove deposits, the term "detergent" is falling into disfavor in some circles. Nevertheless, regardless of their mechanism, it should be emphasized that detergents serve a very important function in promoting the engine cleanliness properties of lubricating oils, especially for high-speed automotive and Diesel equipment.

DISPERSANTS: The action of dispersion in a lubricating oil is of a physical nature, in that the products of fuel combustion, chiefly soot, along with some oil decomposition products are held in suspension in the oil. This appears to be accomplished by the breakdown of these contamination particles into a finely-divided state, or maintaining them in their original colloidal state. By this action, agglomeration of the particles is prevented with the result that oil filters and strainers remain unclogged for longer periods of time, and are thus better able to perform their function of removing from the oil stream any materials (such as dust) which might act as abrasives in the engine.

The ability of oils containing dispersants to retain carbon black (which may be considered comparable to blow-by soot) in suspension is shown in the illustration of the two bottles of oil, on this page. It will be observed that the carbon black has settled to the bottom in one instance, denoting low dispersion; while it remains suspended in the oil in the other case, indicating good dispersion properties.



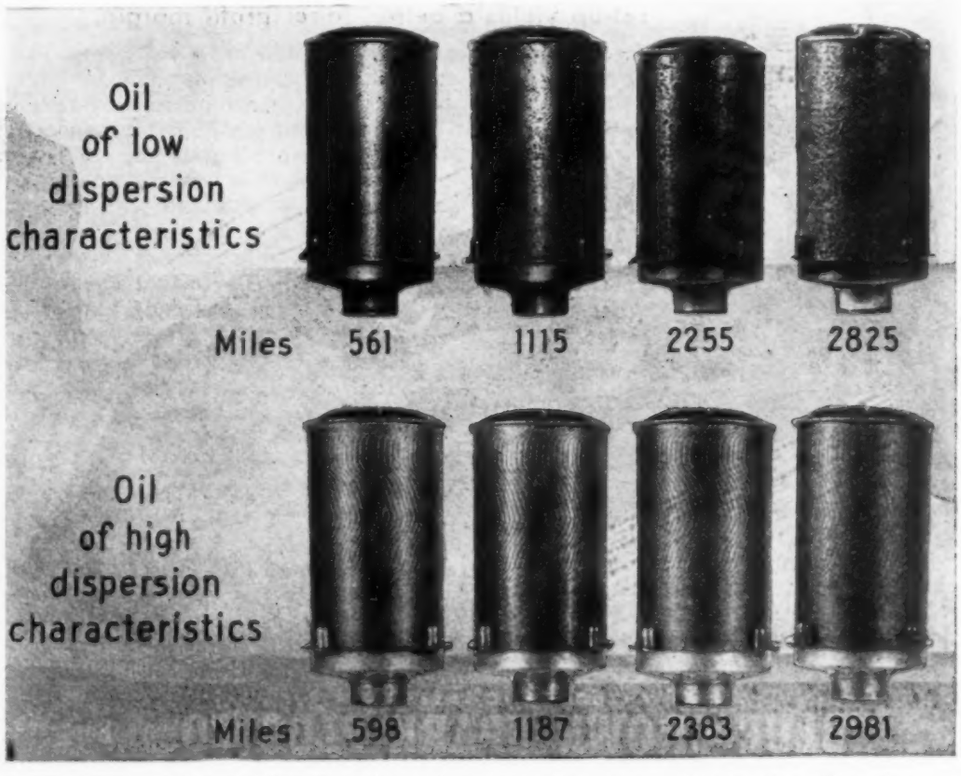
Comparison of oils of low and high dispersion by laboratory dispersion test. Left bottle shows oil of low dispersion; right bottle shows oil of high dispersion.

The property of dispersion cannot be pinned down as being characteristic of any particular type of chemical compound. Although the phenomenon of detergency employs dispersion to a large extent, the two properties should be consided separately. This is readily appreciated when one considers that while all detergents seem to have good dispersion properties, not all oils with high dispersion values display satisfactory detergency.

EXTREME PRESSURE AGENTS: It is of paramount importance that a lubricant maintain a film between moving metal surfaces. Under operating conditions where the clearances are relatively large, the problem is simply one of selecting the proper viscosity grade of oil. In service where pressures are high, however, as in hypoid gear lubrication, the lubricant is forced out and seizure of the metals may occur. As a result, additives known as extreme pressure (E.P.) agents were developed, to impart the necessary high load-carrying properties to the lubricant.

A number of different types of compounds have been found to increase the load-carrying properties of lubricants. Certain phosphorus

(*Please turn to page* 148)


Oil of low dispersion characteristics
Miles 561 1115 2255 2825
Oil of high dispersion characteristics
Miles 598 1187 2383 2981

Dispersion effect of lubricating oil on oil strainers. Top strainer elements show effect of oil of low dispersion characteristics. Bottom strainers show effect of oil of high dispersion.

Why COOPERS are used by more truck owners than ever before

1. The combination of Rayon Cord and Distributed Stress Construction protects against tire-killing heat, load and road shock—guarantees better all-around tire performance on all types of trucking operations.

2. The scientific blending of natural and synthetic rubber makes Cooper DSC truck tires tougher, more rugged all the way through—better built to "Deliver the Goods" longer at a lower cost per mile for you.

Take advantage of the money-saving service Cooper DSC truck tires give. Find out why you can haul more profitable payloads on Cooper truck tires for less. See your Cooper dealer, or write for complete details today.

The Cooper Corporation
Factories at **FINDLAY, OHIO**

Cooper
ARMORED-CORD
TIRES

ICC inspectors are now checking over-the-road trucks to see that they comply with not only the ICC regulations, but with state regulations as well. This picture was snapped during a 3-week check-up of trucks leaving New York.

HOW I.C.C. SAFETY INSPECTION WORKS

THE explanation given most frequently by drivers, when the I.C.C. inspector finds an empty fire extinguisher in a truck, goes something like this: *"Well, I hadda stop and help a driver put out a fire about two hours ago; it was chock full when I started"*, according to Ernest G. Cox, district supervisor in the Chicago area for the I.C.C. Bureau of Motor Carriers.

A short time ago Mr. Cox took a representative of the National Safety Council along on one of the regular night-time road inspections of motor carriers. Fleet men may be interested in what the Council's reporter learned as to just what procedure is followed on these all-night road tests.

In the first place, the I.C.C. inspector selects a point on the highway where the tests can be made in safety, and a lot of thought goes into the proper selection of a good "spot" for such tests. There must, of course, be a wide shoulder to permit the vehicles to pull off the highway, in order not to interfere with other traffic on the road while the test is being made. And, if possible, the area should be well lighted.

Both of these conditions can be met by running the inspection in a small town where the highway goes through the town on a street that is lighted and is wide enough to permit the truck to be stopped at the side without interfering with traffic.

Sometimes the wide roadway and the overhead lighting at a big intersection provides a safe place for the tests, but this is not often the case.

The second problem is to choose a time of day that will yield the greatest number of commercial vehicles and interfere least with regular traffic. Because most of the intercity and interstate trucks are operated at night and because most other travel is done during the day, the logical time for the road tests is at night. However it is sometimes desirable to run a 24-hour test, in which case two men work during the busy hours of the night and then operate in shifts during the day.

After the time and place are selected, the aid of the state police patrol is enlisted, to help stop the vehicles and to direct other traffic safely around the spot where the test is being made. Pot torches and signs are erected to warn the approaching drivers of the test and the stage is set.

Let's tag along and see what happens when a truck is stopped for inspection and test. First the state police stop the truck and explain the inspection to the driver who probably is familiar with the practice of making these tests, but who probably has never had his own vehicle inspected by I.C.C. safety inspectors.

The brakes are checked first. The clearance of the brake pedal and the clearance of the piston in the trailer brake diaphragm are tested. They should be properly adjusted. The brake hose connection between the tractor and trailer must be tight. Some drivers put on garden hose or have allowed their regular hose to become so worn that it is near the point of collapse. Consequently, the trailer may be without dependable brakes. Sometimes the hose is too small for effective braking action. Wear on the tire tread is another indication of the action of the brakes. This is watched even more carefully now than formerly, because of the rubber shortage.

(*Please turn to page* 92)

TWO HUNDRED EIGHTY TIMES AROUND THE WORLD PROVES . . .

*Porous Chrome** PISTON RINGS

better in Every Way

IT'S ALL HEADLINES ABOUT A-H POROUS CHROME RINGS!

Fleet Operators To Profit By New Development!

Proved By Seven Million Miles Of Road Tests!

Tested In All Types Bus And Truck Engines, All Types Of Service!

Porous Chrome Rings . . .

. . . Quadrupled Time Between Engine Overhauls
. . . Reduced Normal Cylinder Wear One-Half
. . . Lowered Oil Consumption For Longer Period
. . . Seated Instantly . . . No Break-In Troubles

Porous Chrome Piston Ring Sets For Truck And Bus Engines Ready Now. Call Your American Hammered Jobber.

ANOTHER
American Hammered
RING LEADER

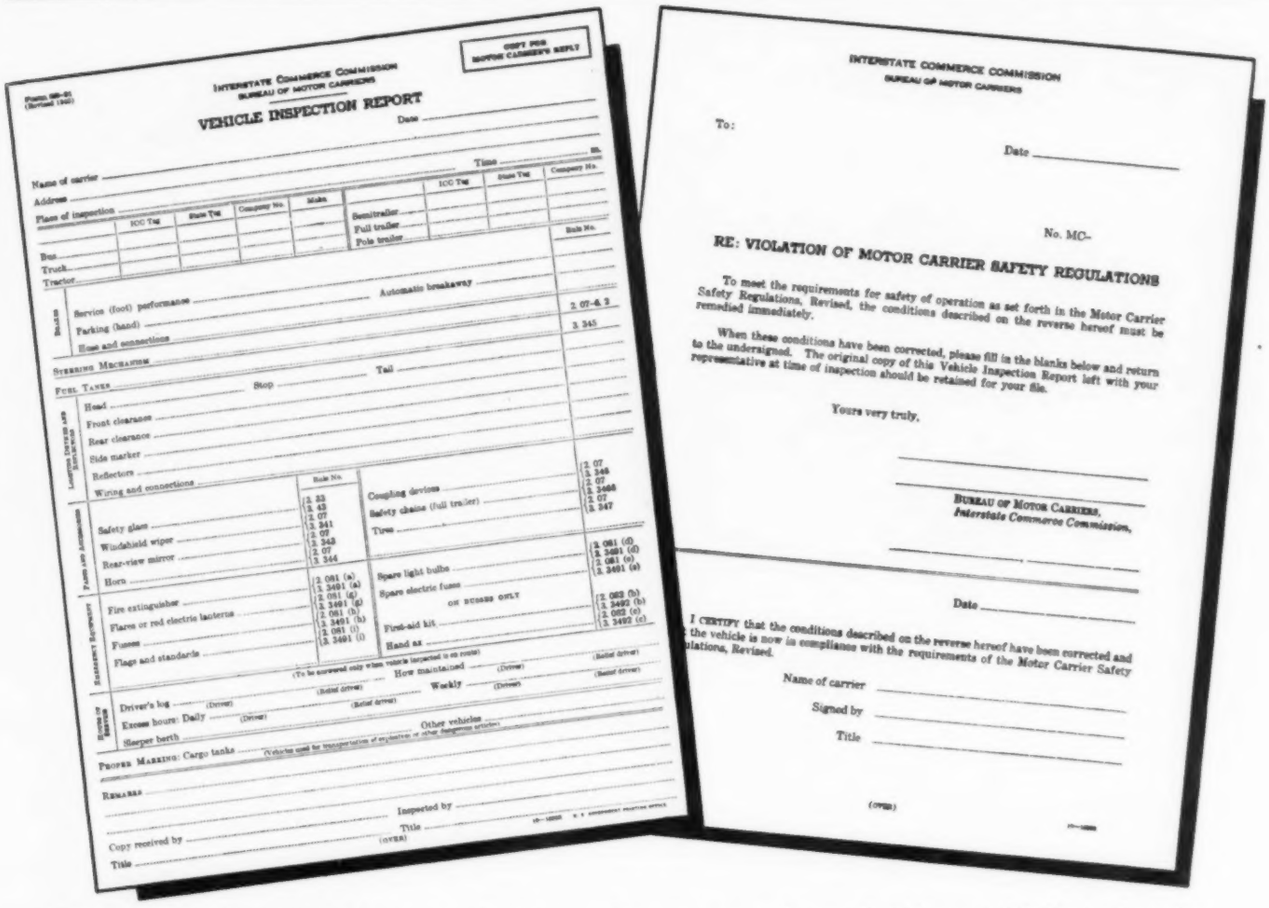
Chrome piston rings are an original American Hammered development.

* Van der Horst process

Koppers Company, Inc., American Hammered Piston Ring Division, Baltimore, Maryland

American Hammered Piston Rings

A KOPPERS PRODUCT



INTERSTATE COMMERCE COMMISSION
BUREAU OF MOTOR CARRIERS

VEHICLE INSPECTION REPORT

Date

Name of carrier

Address

Time

Place of inspection

	ICC Tag	State Tag	Company No.	Make
Bus				
Truck				
Tractor				
Semitrailer				
Full trailer				
Pole trailer				

Brakes: Service (foot) performance — Automatic breakaway — Parking (hand) — Hose and connections — Steering Mechanism — Fuel Tanks — Stop — Tail

Lamps, Reflectors and Electrical Equipment: Head — Front clearance — Rear clearance — Side marker — Reflectors — Wiring and connections

Cabs and Accessories: Safety glass — Windshield wiper — Rear-view mirror — Horn

Emergency Equipment: Fire extinguisher — Flares or red electric lanterns — Fusees — Flags and standards

Coupling devices — Safety chains (full trailer) — Tires

Spare light bulbs — Spare electric fuses — First-aid kit — Hand ax

Hours of Service: Driver's log — Excess hours: Daily — Sleeper berth — How maintained — Weekly

Proper Marking: Cargo tanks — Other vehicles

Remarks

Inspected by

Copy received by — Title

(OVER)

INTERSTATE COMMERCE COMMISSION
BUREAU OF MOTOR CARRIERS

To:

Date

No. MC-

RE: VIOLATION OF MOTOR CARRIER SAFETY REGULATIONS

To meet the requirements for safety of operation as set forth in the Motor Carrier Safety Regulations, Revised, the conditions described on the reverse hereof must be remedied immediately.

When these conditions have been corrected, please fill in the blanks below and return to the undersigned. The original copy of this Vehicle Inspection Report left with your representative at time of inspection should be retained for your file.

Yours very truly,

BUREAU OF MOTOR CARRIERS,
Interstate Commerce Commission,

Date

I CERTIFY that the conditions described on the reverse hereof have been corrected and the vehicle is now in compliance with the requirements of the Motor Carrier Safety Regulations, Revised.

Name of carrier

Signed by

Title

(OVER)

FRONT and back of I. C. C. Vehicle Inspection Report. . . . Four copies are made, one of which goes to Washington for review.

A decelerometer is the official means for determining the effectiveness of brakes. Vehicles should be able to stop in 30 feet from a speed of 20 miles per hour. The braking distance and speed can be checked easily by use of the decelerometer.

After the brakes are checked, the lights and reflectors are inspected. The lights should be working; and the lenses should be neither dirty nor broken. Dirty or broken lights and reflectors are found especially on trailers where the driver might be unaware of their condition unless he had conscientiously made the required inspection before starting. If these conditions exist, the driver is told to have them corrected at the earliest opportunity and if their condition is too bad, the driver must stay right where he is until they have been fixed.

The electrical connections between the tractor and trailer are also checked. Many failures of trailer lights are due to the use of makeshift equipment in connecting the trailer to the tractor. Failure to make a good ground connection between the trailer and the tractor often results in dim lights on the trailer. This is one of the most common conditions found when trailer lights are not in good working order.

The steering mechanism is next checked; lug nuts on the wheels are observed. The bolting of the fifth-wheel connection is examined because a poor fifth-wheel connection affects steering.

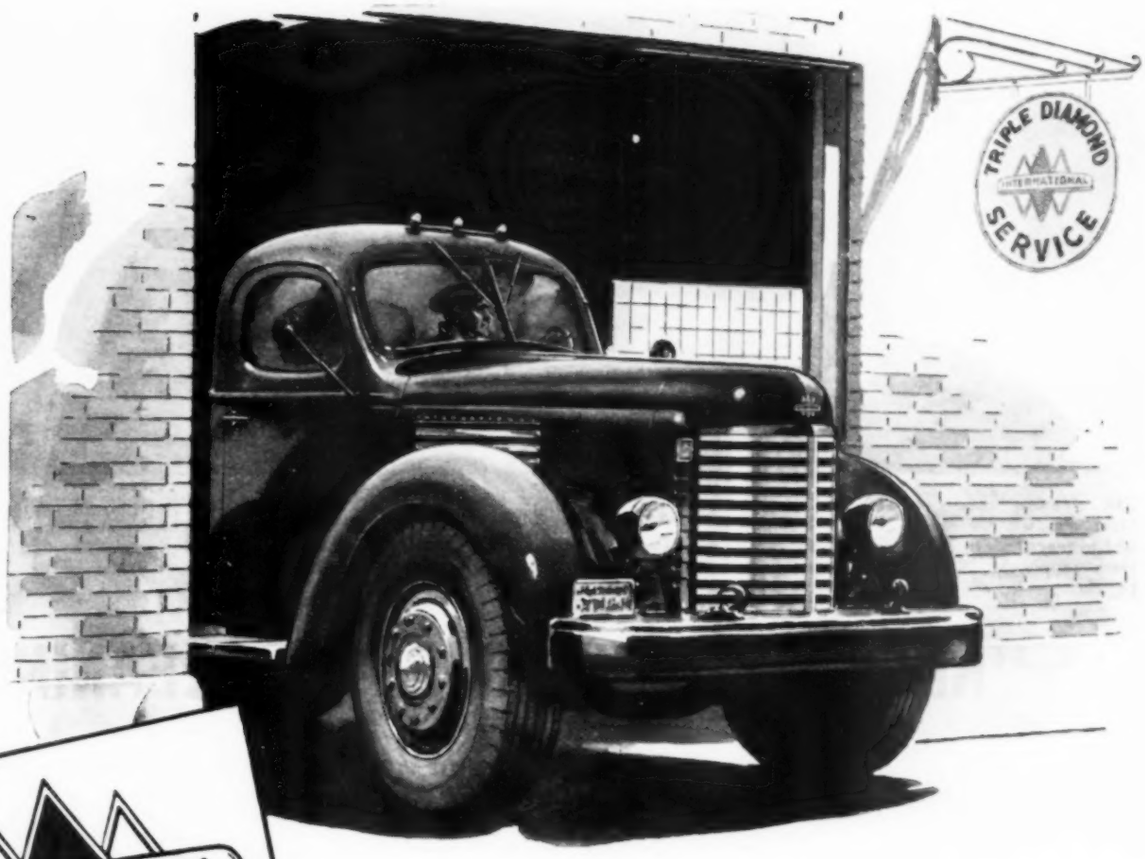
The gasoline tank and line are observed for leaks; the gasoline cap is checked to see if it is secure; some drivers use rags or an inverted tin can to replace a lost cap—both of which would be dangerous in the event of an accident. The horn is tested, the windshield wiper is checked and the rear-view mirror is examined, both for clarity and position. With an inspection of the tires, the test of the vehicle itself is complete.

Now for the safety and emergency equipment. The fire extinguisher is examined first. It should be well filled and in good usable condition. It should be located so that it is immediately accessible. All too often the fire extinguishers are under the seat where the driver can't find them, or the driver doesn't even know where they are kept. Fire extinguishers must be kept filled, both to be effective and to prevent rust. The inside of a partly-filled extinguisher will rust in a short time to such a point that it is no longer in a usable condition.

There should be three fusees and three pot torches adequately filled. Mr. Cox said that two out of three pot torches checked are found to be empty or nearly empty. It is not absolutely necessary for the driver to carry matches to light his pot torch as it can be lighted with a fusee, which does not require matches.

There must be at least one spare bulb for each type of light, and there must be one spare fuse for each type of fuse used on the truck. There must be two red flags with standards. The inspectors often find trucks equipped with flags without standards. In such cases the flags are useless unless the pot torch is designed to serve as an emergency standard.

(*Please turn to page* 156)



INTERNATIONAL

This emblem identifies the nation's largest company-owned truck-service organization—International Branches—and International Truck Dealers everywhere.

5 Reasons Why
INTERNATIONAL SERVICE
Can Help You Meet Rising Truck Operating Costs

1. Mechanics who furnish International Service are *truck* mechanics—specialists in truck service.

2. They are trained in International shop methods.

3. They are kept constantly informed of all improvements in maintenance and service practices.

4. They use International-approved equipment for analysis and testing.

5. They install International factory-engineered parts.

International Truck Service is supplied by a national network of International Truck Dealers and by International Branches—the nation's largest company-owned truck-service organization. It is available for trucks of all makes and models.

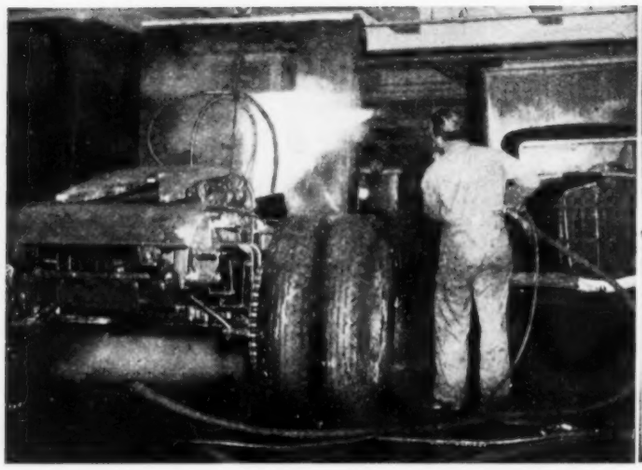
In the present critical truck situation, International Truck Service is your best bet to keep operating costs at practical levels and to minimize chances of highway failures. You will find an International Branch or Truck Dealer within easy driving distance. Get in touch with him today.

Motor Truck Division
INTERNATIONAL HARVESTER COMPANY
180 North Michigan Avenue Chicago 1, Illinois

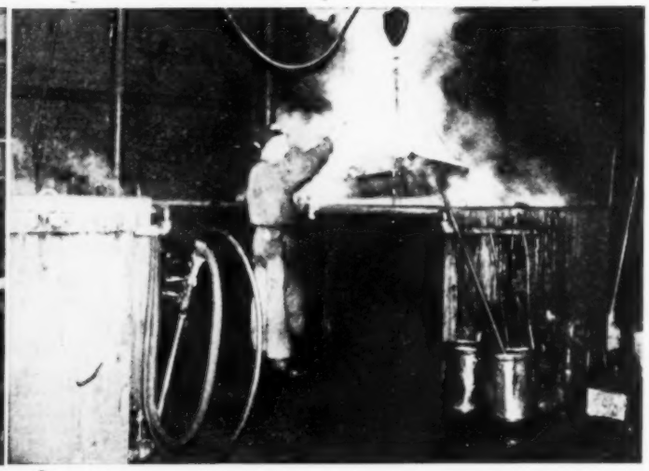
Listen to "Harvest of Stars" every Sunday. NBC Network

INTERNATIONAL

INTERNATIONAL *Trucks*



FOR cleaning chassis, underparts, etc., a good solution-lifting steam gun will be found easy to manipulate, getting into those hard-to-reach spots and knocking off heavy grease and dirt. A steam supply of 30 lbs. pressure or over, is required, however.



THE use of alkaline cleaning materials in heated tanks provides a fast way to degrease motor blocks and other large parts. Low cost of operation is promised through thorough cleaning action and long life of the solution, which may be used indefinitely.

"REFRESHER COURSE" in CLEANING

HOW CLEANING AFFECTS TRUCK FLEET MAINTENANCE — AND SOME of the METHODS COMMONLY AVAILABLE

By R. L. Fiske

Oakite Products, Incorporated, New York, N. Y.

OF the many factors that enter into truck fleet maintenance, cleaning is being given increased attention. The shortage of equipment and skilled labor during the war has re-emphasized the advantages and economies of modern cleaning procedures. Today it is generally recognized that cleaning is an essential part of repair work and that up-to-date methods of removing grease, dirt, etc., can do much to further maintenance efficiency.

A fleet operator may have practically any cleaning problem known to an automotive service station. He may, for example, want to remove muck and grease from motor parts before inspection, or he may simply want to wash down his trucks for the sake of appearance. Whatever cleaning job he does, he will profit by doing it well. The condition of his trucks is vital to his business, whether it be a local concern or one engaged in interstate transportation.

Many cleaning operations have a direct effect on the efficiency of inspection and repair work. Obviously, not until parts have been freed of grease and dirt down to bare metal can the mechanic see the extent of wear or damage. Furthermore, clean parts can be handled easier, faster and with less danger of dropping them. The mechanic is thus enabled to use his highest skill.

In all such cleaning, the use of kerosene, gasoline, or other inflammable solvents has been outmoded. Any parts cleaning job can be handled safely and efficiently in a water solution of a good alkaline material.

Use of Cleaning Tanks: Alkaline cleaning materials are commonly employed in heated cleaning tanks. Motor blocks and repair parts are simply immersed in the solution until the oil, grease and dirt have been emulsified and loosened. The work is then rinsed, either in a separate tank or with a hose. The solution may be used for an indefinite period, additional material being added as needed to maintain full working strength.

When the cleaning material becomes too contaminated for further use, the tank can be drained, cleaned out, and a fresh solution can be made up. Good alkaline cleaning materials have long life and will clean work efficiently for a long period of operation.

Methods of Heating: Cleaning tanks should, naturally, be of a size to hold the biggest parts to be cleaned. Efficient, economical heating may be provided by a closed steam coil or by a gas immersion burner. An overflow dam along one side of the tank is desirable to permit floating oil, scum, etc., to drain off, so that they are not re-deposited as the parts are taken out of the tank.

Proper maintenance of truck cooling systems is another important cleaning job. Neglect of this operation can mean increased oil consumption, scoring of cylinder walls and eventual engine breakdown. Periodic cleaning with suitable materials is the best practice, especially in the spring, and in the fall before charging with antifreeze.

The type of material recom-

(*Please turn to page* 156)

Two Eastern Bus Line Owners challenge YOU to stack your present oil against this!

No Corrosion After 3½ Years

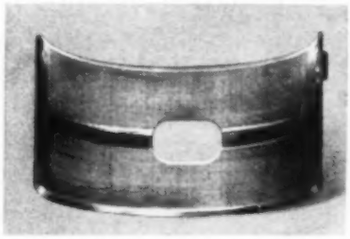
Last summer this Jersey City, New Jersey, franchise bus owner took down the motor of his 1940 White unit for the first time in 3½ years—found no corrosion whatever—credits this to Gulf Dieselube H.D., a heavy-duty, detergent oil—challenges you to get such results with other oils!

Breaks Brake "Clog-Up"

Plagued with gummy unloading valves in his air appliances, this maintenance superintendent of a large Long Island, New York, bus outfit switched his units to Gulf Dieselube H.D. Reports power-brake system has stopped clogging up—all parts are clean—challenges you to find a more efficient oil than Dieselube!

And Here's Uncanny Proof In Pictures

Note the corroded, pitted surface of the bearing above. Just removed from an engine in the Gulf Laboratories, this bearing has undergone high-speed, high-temperature tests with an oil that proved extremely corrosive—is now practically ruined. Gulf Dieselube H.D. protects against such corrosion damage.



As proof, here's another bearing pictured after undergoing identical test conditions, with one exception—it was lubricated with Gulf Dieselube H.D. The results speak for themselves—a smooth surface, free from corrosion. Gulf Dieselube H.D. will not corrode cadmium-silver, copper-lead, or any other alloy bearings.

10 WAYS

Gulf Dieselube H.D. Can Help You!

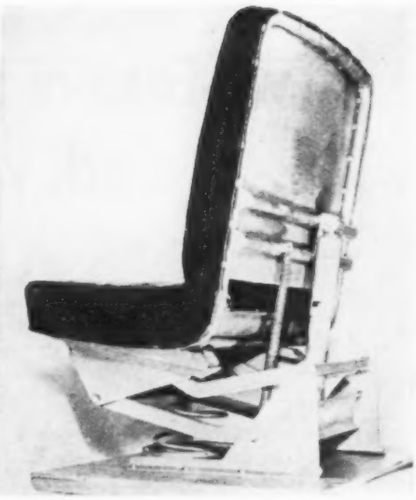
1. Reduces ring sticking
2. Improves compression
3. Keeps engines clean
4. Lengthens ring life
5. Keeps oil screens clean
6. Does not "foam"
7. Minimizes cylinder wear
8. Prevents varnish and gum formation
9. Reduces sludge deposits in oil pan
10. Reduces time out-of-service

GULF **DIESELUBE H.D.**

For Heavy-Duty Gasoline and Diesel Engines

THE framework of the new "Level-Ride" truck seat offered by Bostrom Manufacturing Co. Note coil springs, single-unit construction and shock absorber.

AND here's the same (Bostrom) seat, as it looks with the upholstery material. This seat was created by A. F. Hickman, a nationally-known suspension engineer.



HERE's the new Monroe truck seat, also available in double width (see below) as well as in single form for farm machinery; note springs and shock absorber.

TWO TRUCK SEAT DESIGNS PROMISE DRIVER COMFORT

•

By Karl Bostrom

TWO TYPES, NOW AVAILABLE PLACE SPRING SUSPENSION UNDER DRIVER—FEATURE A SHOCK ABSORBER and COIL SPRINGS—AND WILL ELIMINATE "SHIRT - TAIL - RUB".

THE war has brought many refinements and improvements in truck design, both mechanical and functional, but few have been obvious enough to be seen to-date. One of these new developments has to do with driver comfort—the driver's seat.

Two new types of truck seats have been shown in recent months, and are now immediately available to fit most trucks now operating. These two new seats, illustrated on this page, make use of a novel suspension that is said to provide a "passenger-car ride" even on rough-riding trucks.

HERE's the double-width version of the latest in truck seats by Monroe. It is mounted on a coil spring and its action is also controlled by a shock absorber.

The new seats actually place a coil spring suspension system under the individual driver's seat—including the back—and, which is more, this suspension is controlled by a hydraulic shock absorber.

Before the war, the trend was unmistakably towards smaller and smaller cabs, with less and less space for the driver's seat. One engineer was overheard to remark that seats nearly reached the point where only enough space was left for a robot mechanism to drive the truck. This cab design trend was prompted in part by streamlining, and also by the need to increase payload capacity. As with all trends, it finally ran into the law of diminishing returns.

The trend has now been completely reversed. All truck manufacturers are now designing their 1947 and 1948 models with many improvements in the cab for driver comfort. Truck engineers and fleet operators are cooperatively working on this problem through the Society of Automotive Engineers, in a program that is now beginning to see results. All new cab designs will take into consideration the need for sufficient space for the new type of suspension seats that will be available both as original and optional equipment.

The need for more seat space hinges upon a number of factors, and the most important element is the design requirement permitting a "passenger-car" spring suspension under the driver's seat. Enough space for motion must be provided if the seat is to absorb shocks and jolts. The movement of the passenger-car's wheels and suspension, as it travels over a rough road, is the visual picture of the need for motion in the truck driver's seat.

For better seating, more cab space is needed in every direction. The ideal seat should provide fore-and-aft adjustment, tilt and height adjustment, and sufficient height from the floor to allow a seat suspension to function. Practically, substantial fore-and-aft adjustment and available height from the floor of the cab to the top of the seat, will fill the bill. Such improved seat space allowance will permit better accommodation for short and tall drivers, and the best riding results from the seat suspension.

The spring suspension seats thus far shown to the truck field are

(*Please turn to page* 158)

Salute

for a Golden Anniversary

IT was in April, 1896, that the Gateway City Transfer Company of La Crosse, Wisconsin, began business with six people and "seven head of horses and mules." From that small beginning has grown a great corporation which handled over two hundred thousand tons of freight in 1945, with a gross revenue of nearly two and a quarter million dollars, with branch offices in eighteen cities in five states.

From Highway Trailer to Gateway City Transfer go heartiest congratulations on this fiftieth anniversary, an occasion which finds the original equipment of seven horses and mules expanded to 131 trailers, 103 tractors, 57 trucks and 27 passenger cars. In connection with the recent purchase of ten new Highway Tandem Trailers, Eugene W. Murphy, secretary and treasurer, writes, "This is proof of our complete satisfaction with Highway Trailers."

Take a tip from this old established hauling concern, and let your next trailers be "Highways." Write today for complete information on the new Highway "Freightmasters" and "Clippers," the peak of postwar achievement in economical motor transport.

HIGHWAY TRAILER COMPANY

General Offices, Edgerton, Wisconsin

Factories at: Edgerton, Wis., Stoughton, Wis., Farmingdale, L. I., N. Y.

Commercial Truck Trailers • Earth Boring Machines
Winches and other Public Utility Equipment

On Every U.S. 16 *Highway*

HIGHWAY AMERICA'S QUALITY TRAILERS

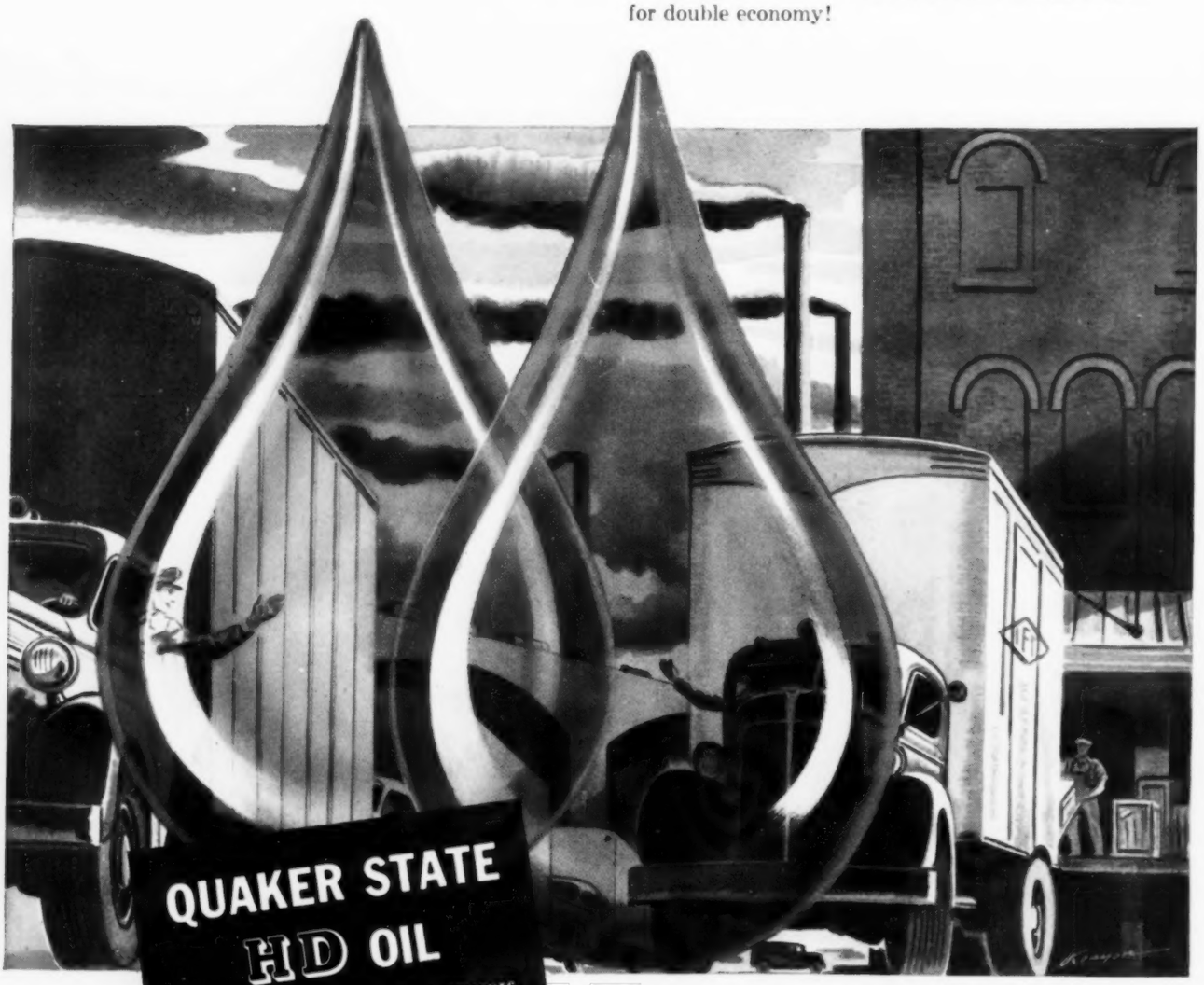
Now you have double reason for using DOUBLE-DUTY OIL!

AS millions of truck, bus, and tractor owners can testify, Quaker State HD Oil did DOUBLE DUTY in the engines of their equipment during the past four hard years — and they won't forget it.

They learned then that this DOUBLE-DUTY oil not only does lubricate better and longer, but keeps engines cleaner — loosens up and removes trouble-making dirt, sludge, grit, carbon, and gummy, sticky "varnish."

Today you have new equipment, or are planning to get it. You are going into a new period of keen competition, where costs must be counted. So Quaker State HD Oil can be doubly important to you now. Use it to help you protect your new equipment — keep it on the job, earning money — holding down costs.

Buy Quaker State HD Oil and use it regularly — for double economy!



Quaker State HD Oil for your trucks, buses, and tractors
Quaker State Motor Oil for your passenger cars

QUAKER STATE OIL REFINING CORPORATION • OIL CITY, PENNSYLVANIA

Please mention FLEET OWNER *when writing to advertisers.*

New S&U 200 Series

Single-Speed Double-Reduction*

New hypoid-helical double-reduction drive . . . new torsion-flow "Axaloy" axle shafts . . . new 9-16 tooth combination differential . . . new interjacent pinion shaft location . . . plus scores of other modern features. Data on ALUMINUM housing, brake shoes and hubs on S Series for weight saving available upon request.

READY NOW!

TWO NEW HEAVY-DUTY AXLES!

Two new tough-as-nails Timken axles are ready to whip your heavy-duty hauling problems—the new S and U-200 Single-Speed Double-Reduction and the new S and U-300 2-Speed Double-Reduction Axles.

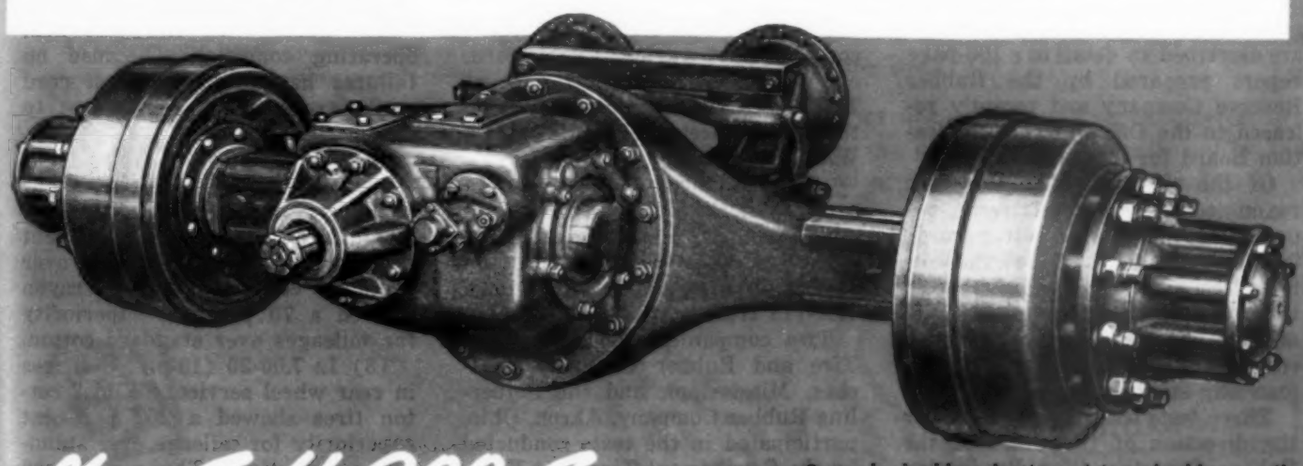
Both are designed for modern high-power engines —the S Series for loads over 18,000 pounds, and the U Series for heavier loads and off-the-road operation. Both are bears for punishment—have more up-to-the-minute features than you can shake a prop shaft at. Both are in *full production now*—the only postwar heavy-duty axles ready to pitch in and start working for you immediately.

Operators who are using these new axles call them the *final answer to heavy-duty final drive problems.* For all that's modern and best in design and performance, specify Timken S or U Series Axles under the next heavy-duty trucks you buy.

The Accepted TIMKEN AXLES Standard

TIMKEN AXLES

THE TIMKEN-DETROIT AXLE CO., DETROIT 32, MICH.
WISCONSIN AXLE DIVISION • OSHKOSH, WIS.
TIMKEN AXLE BRAKE DIVISION • DETROIT 32, MICH.



New S&U 300 Series

2-Speed Double-Reduction*

2-speed double-reduction drive doubles available gear combinations — gives greater pulling power and high road speeds in same truck. Equipped with famous Timken Easy Power Shift —no manual shifting required. Like S and U-200, S and U-300 offer option of new DP Heavy-Duty Hydraulic Brake or famous P Series Power Brake.

*FINAL DRIVES INTERCHANGEABLE IN THE SAME AXLE HOUSING

GOVERNMENT TESTS TIRE CORDS

ACTUAL TESTS, ON TRUCKS AND CARS, REVEAL INTERESTING COMPARISONS OF STANDARD COTTON CORDS, LONG-STAPLE COTTON CORDS, AND RAYON, FOR FINAL MILEAGE AND TREAD-WEAR

GOVERNMENT tests to determine the comparative merits of standard cotton, "Wilds" variety cotton, and rayon tire cords, are described in detail in a 100-page report prepared by the Rubber Reserve Company and recently released to the Office of the Publication Board for distribution.

Of the tires tested, those with rayon cords were relatively superior to those with cotton cords in respect to mileage, but the cotton tires showed a slightly better tread-wear rating than rayon tires, according to the report. . . . "Wilds" cotton is a special variety of American long-staple cotton.

Three tests were conducted under the direction of the Office of the Rubber Director, War Production Board, and the Rubber Reserve Company, for the following purposes:

(1) To compare standard cotton cord and "Wilds" variety cotton cord in carcasses of 6.00-16 standard (4-ply) S-3 (synthetic rubber) passenger car tires.

(2) To compare standard cotton cord, "Wilds" variety cotton cord, and rayon cord in carcasses of 7.00-20 (10-ply) highway tires on the rear wheels of White Model WA-118 trucks.

(3) To compare standard cotton cord, "Wilds" variety cotton cord, and rayon cord in carcasses of 7.00-20 (10-ply) highway tires on the front wheels of White Model WA-118 trucks.

Two companies, the Armstrong Tire and Rubber Company, Natchez, Mississippi, and the Seiberling Rubber Company, Akron, Ohio, participated in the tests conducted by the Government Tire Test Fleet. The U. S. Department of Agriculture collaborated in organization of the tests. The tests were begun in August, 1944, and concluded in January, 1945. (The data has just been released, however.—*Ed.*) The results of these tests, as summarized in the report, are as follows:

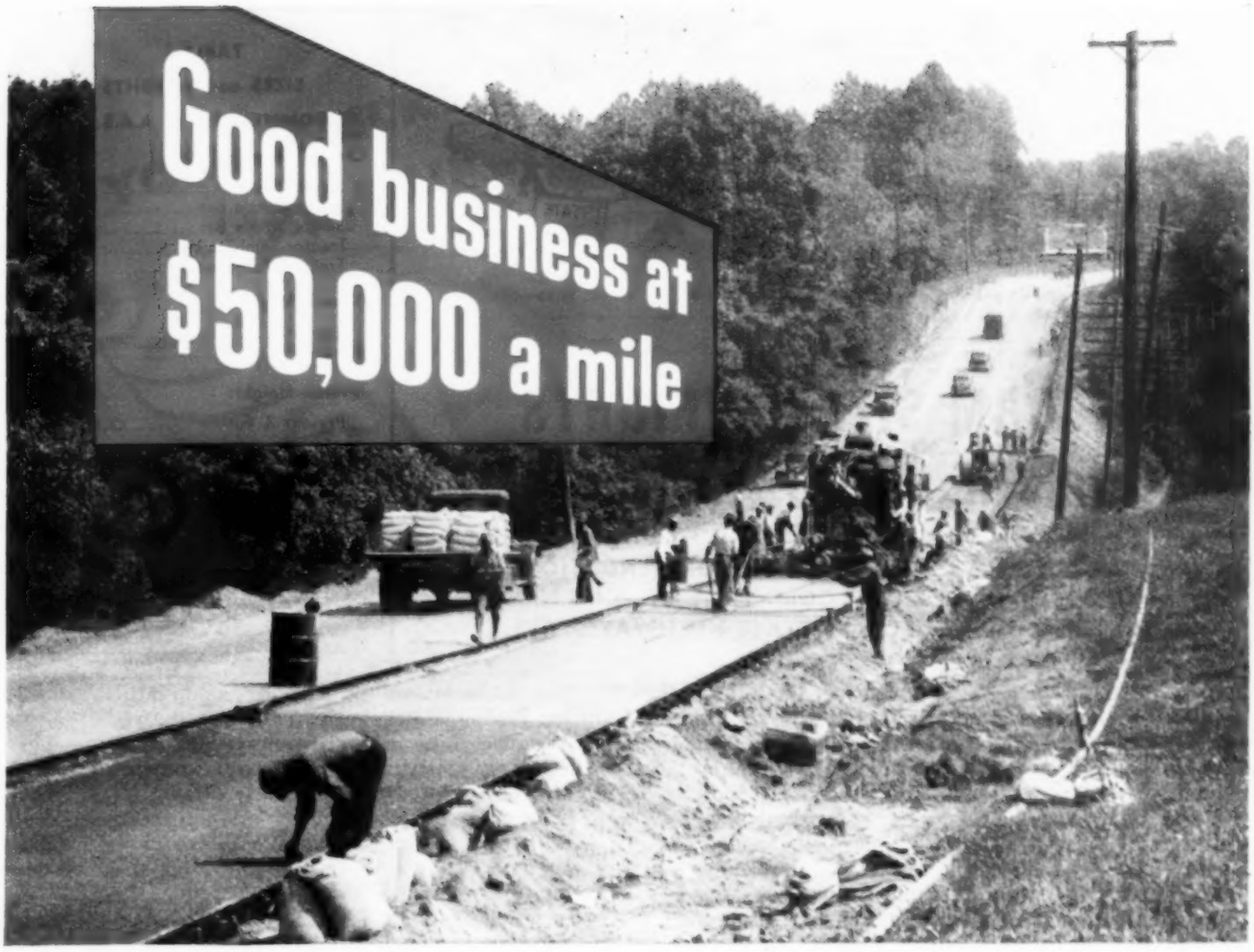
(1) Standard cotton cord is entirely adequate for 6.00-16 (4-ply) passenger car tire service. If "Wilds" cotton has any superiority in quality over standard cotton, this difference cannot be demonstrated in passenger car tires under Government tire test fleet operating conditions, because no failures have resulted from cord weaknesses at mileages up to 68,000 miles.

(2) In 7.00-20 (10-ply) S-4 (synthetic rubber) tires in front wheel service, on trucks, "Wilds" cotton tires showed a 30 per cent superiority for final mileage over standard cotton tires, but rayon showed a 70 per cent superiority for mileages over standard cotton.

(3) In 7.00-20 (10-ply) S-4 tires in rear wheel service, "Wilds" cotton tires showed a 202 per cent superiority for mileage over standard cotton tires. The rayon cord tires tested showed a 517 per cent improvement over the standard cotton tires for mileage.

(4) Cotton tires show a slightly

(*Please turn to page* 160)



● Fifty-thousand dollars for 5,280 feet of concrete may sound high priced, but *we can afford it.*

Highway improvements pay for themselves by lowering transportation costs—by making higher speeds and heavier pay-loads possible.

In a few words, *good highways are good business.*

As trucks and buses go faster and carry heavier loads —as the science of *going* progresses—there are new problems to be solved in the twin science of *stopping.*

American Brakeblok has *specialized* in sure, safe stops for many years. As super-vehicles are built to roll on super-highways, American Brakeblok Brake Lining is trusted by automobile manufacturers, fleet operators and drivers to stop the load. For this reason, a majority of trucks and buses use American Brakeblok lining as original equipment.

Maintenance men and fleet operators specify American Brakeblok Heavy Duty Brake Lining because it is available in three types to meet the specific requirements of all operating conditions and the various kinds of brake systems. The use of brake lining with correct frictional qualities for the job *ups* safety and *cuts* operating costs.

If you operate a truck or bus, in all probability, American Brakeblok can make a contribution to safety and operating efficiency through better brake lining.

Stopper says: "We make brake lining for all types of vehicles and brake systems. But only one quality—the best!"

NAPA Assurance of Quality

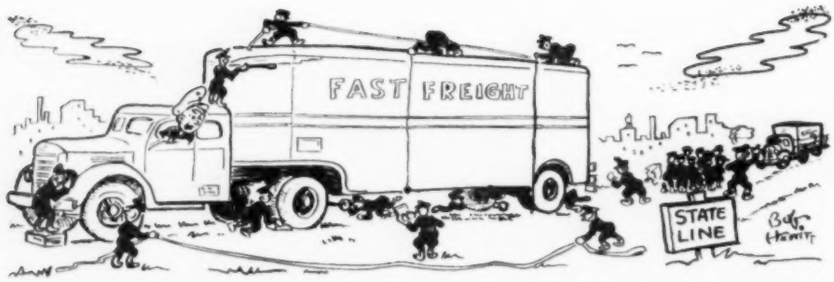
Thirty-eight strategically located NAPA warehouses carry master stocks of American Brakeblok products.

American Brakeblok

BRAKE LINING

AMERICAN Brake Shoe COMPANY

AMERICAN BRAKEBLOK DIVISION
DETROIT 9, MICHIGAN



Uniform standards would prevent many checking-up parties at state lines—like this.

TABLE I

SIZES and WEIGHTS

RECOMMENDED by A.A.S.H.O.

Overall Length:

Single Truck	35 ft.
Single 2-Axle Bus	35 ft.
Single 3-Axle Bus	40 ft.
Tractor-Semi-Trailer	50 ft.
Truck & Full-Trailer	60 ft.

Overall Width:

Present	96 in.
Future	102 in.

Overall Height:

Present & Future	12½ ft.

Permissible Loads:

Single Axle	18,000 lbs.
Tandem Axle	32,000 lbs.
Axle Groups	Table II

Maximum Speed:

Trucks	45 m.p.h.
Passenger Vehicles	"Safe"

UNIFORM SIZES, WEIGHTS RECOMMENDED by A.A.S.H.O.

MOTOR VEHICLE SIZE-WEIGHT RECOMMENDATIONS of HIGHWAY TRANSPORT COMMITTEE of A.A.S.H.O. NOW BEING VOTED UPON by STATE HIGHWAY DEPTS.

BACK in 1932 the Highway Transport Committee of the American Association of State Highway Officials adopted a standardized table of motor vehicle sizes and weights, which, it was hoped, would be adopted by all of the states in the Union. Lots of progress, of course, has been made since that time, but we are still quite far from standardization or uniformity, as most fleet operators are well aware.

On January 31, 1946, the same Highway Transport Committee recommended for adoption a revised table of sizes and weights for motor vehicles, as listed in Table I in the upper right-hand corner of this page. As this is being written, we understand that these recommendations had just been submitted to the various state highway departments for "approval" by letter ballot and for subsequent adoption by the American Association of State Highway Officials.

With some modifications, the Highway Transport Committee has confirmed the standards tentatively agreed upon previously. It expressed the belief that the recommendations as presented will win the united support of both highway officials and industry groups, and that with such support, a rapid enactment of more uniform regulatory legislation by the states will be assured.

The gross weight for a tractor-semi-trailer, permissible under the 1932 recommendations [700(L + 40)] was 50,400 pounds, and for a truck and trailer combination 57,400 pounds. Under the new recommendations, increasing the maximum length from 45 to 60 feet, a gross weight of 73,280 is permissible if carried on the required number of properly-spaced axles.

The new recommendations provide that no group of axles shall carry a load in pounds in excess of the value given in Table II, corresponding to the distance in feet between the extreme axles of the group, measured longitudinally to the nearest foot.

The maximum axle and axle-group loads recommended (18,000 pounds per axle with 40-inch spacing) are subject to reasonable reduction, in the discretion of the appropriate highway authorities during periods when road subgrades have been weakened by water saturation or other cause.

The operation of vehicles or combinations of vehicles having dimensions or weights in excess of the maximum limits herein recommended shall be permitted only if authorized by special certificate issued by an appropriate State authority.

In the previous recommendation an axle spacing of 25 feet, for example, would have permitted a maximum gross weight of 45,500 lbs. The new recommendations increase this to 48,350 pounds.

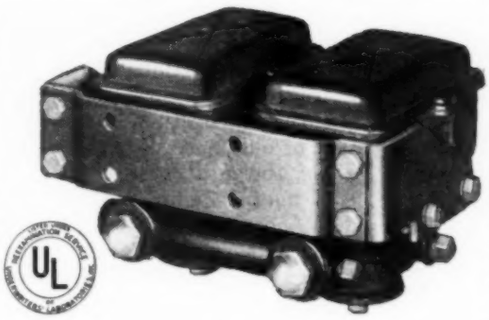
In going through Table I, you will note that there is mention made of "future" overall width of motor vehicles, with the recommendation that this be increased to 102 inches. The Committee recognizes that certain conditions inherent in the design of vehicles suggest the desirability of 102 inches as a standard of maximum width. The existence of numer-

(*Please turn to page* 162)

TABLE II — MAXIMUM LOADS for MAXIMUM AXLE SPACING

Distance in feet between the extremes of any group of axles	Maximum load (in pounds) carried on any group of axles	Distance in feet between the extremes of any group of axles	Maximum load (in pounds) carried on any group of axles
4 feet	32,000 lbs.	31 feet	53,490 lbs.
5 feet	32,000 lbs.	32 feet	54,330 lbs.
6 feet	32,000 lbs.	33 feet	55,160 lbs.
7 feet	32,000 lbs.	34 feet	55,980 lbs.
8 feet	32,610 lbs.	35 feet	56,800 lbs.
9 feet	33,580 lbs.	36 feet	57,610 lbs.
10 feet	34,550 lbs.	37 feet	58,420 lbs.
11 feet	35,510 lbs.	38 feet	59,220 lbs.
12 feet	36,470 lbs.	39 feet	60,010 lbs.
13 feet	37,420 lbs.	40 feet	60,800 lbs.
14 feet	38,360 lbs.	41 feet	61,580 lbs.
15 feet	39,300 lbs.	42 feet	62,360 lbs.
16 feet	40,230 lbs.	43 feet	63,130 lbs.
17 feet	41,160 lbs.	44 feet	63,890 lbs.
18 feet	42,080 lbs.	45 feet	64,650 lbs.
19 feet	42,990 lbs.	46 feet	65,400 lbs.
20 feet	43,900 lbs.	47 feet	66,150 lbs.
21 feet	44,800 lbs.	48 feet	66,890 lbs.
22 feet	45,700 lbs.	49 feet	67,620 lbs.
23 feet	46,590 lbs.	50 feet	68,350 lbs.
24 feet	47,470 lbs.	51 feet	69,070 lbs.
25 feet	48,350 lbs.	52 feet	69,790 lbs.
26 feet	49,220 lbs.	53 feet	70,500 lbs.
27 feet	50,090 lbs.	54 feet	71,200 lbs.
28 feet	50,950 lbs.	55 feet	71,900 lbs.
29 feet	51,800 lbs.	56 feet	72,590 lbs.
30 feet	52,650 lbs.	57 feet	73,280 lbs.

YOUR TRUCKS WILL TAKE HILLS LIKE THIS!



30% More Gas on One Pump Alone in Dual Installation!

Where gas requirements are high, install Stewart-Warner Dual Electric Fuel Pumps. This combination more than doubles the life of each pump. Duals can be installed a variety of ways to operate independently so that one pump operating alone assures 30% more gas than normal single unit installation. The second becomes a safety pump in case of emergency.

. . . or so it will seem with

STEWART-WARNER

ELECTRIC FUEL PUMPS

- **No vapor-lock.**
- **No fuel pump failure.**
- **No engine gasping for gas.**
- **Pump operates only when needed.**
- **Delivers 15 gallons per hour on an average of one ampere of current.**

Constant pressure pushes gas to the carburetor. No vapor pocket can form. What's more, a Stewart-Warner Electric Fuel Pump is a "smooth operator"—lasts long—doesn't pulsate or "beat itself to death." The diaphragm of Du Pont Fairprene simply can't wear out. No rotating parts, no piston, no bearings to fail.

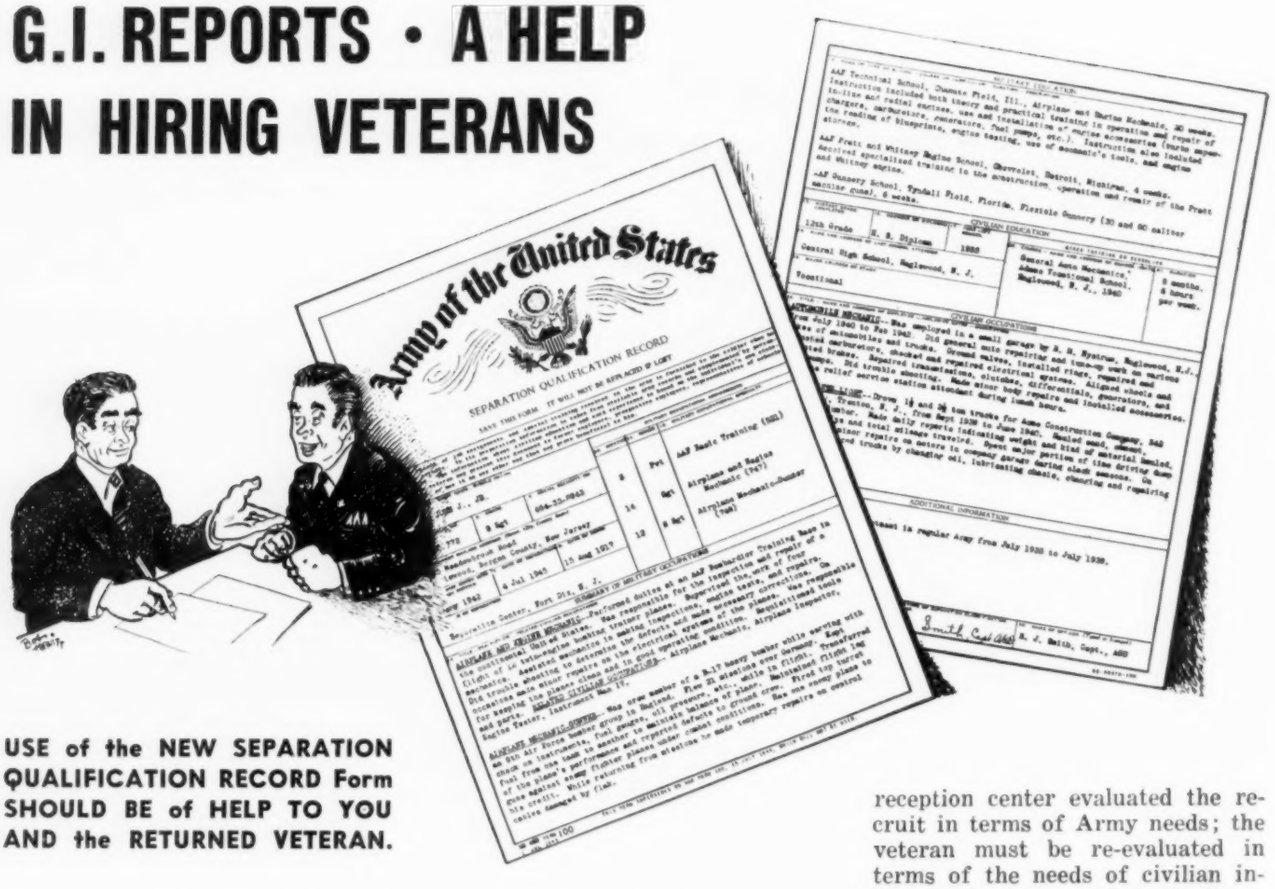
The contact points are sealed in a hydrogen tube and are operated and controlled magnetically. Bears the seal of Underwriters' Laboratories.

For more efficient, more profitable truck operation, install Stewart-Warner Electric Fuel Pumps as replacements or as auxiliary "safety" pumps for heavy-duty operation. Stewart-Warner Corporation, 1831 Diversey Parkway, Chicago 14, Illinois.

STEWART-WARNER
ELECTRIC FUEL PUMP

Another Product of STEWART WARNER

G.I. REPORTS • A HELP IN HIRING VETERANS



USE of the NEW SEPARATION QUALIFICATION RECORD Form SHOULD BE of HELP TO YOU AND the RETURNED VETERAN.

THE War Department would like to call to your attention, in your position as either the director or closely allied administrator of industrial employee relations in your company, to the importance and value of using to the fullest extent Form 100, the Separation Qualification Record, given each service man and woman upon their discharge from the Armed Services.

Knowledge of the purpose and the use to be made of the information contained on this form will benefit both you and the returned veteran in postwar readjustment. A sample form, completely filled out, is available for your study. The information entered on this separation qualification record is gathered by a well-trained Army counselor in the course of an interview with the serviceman at the time of discharge, and checked, wherever possible by reference to pertinent Army records. It is as accurate as highly-qualified interviewers can make it.

The original of Form 100 is given to the serviceman for his own use—to serve as a guide in obtaining his "next job." You should request that all your returning veterans and new applicants for jobs in your company bring with them, for their initial interview, this record of their Army career. It is to your interest as well as theirs as your future employees to use this assistance in placing them in jobs commensurate with their proven ability.

This record, which was developed as a result of numerous conferences with representatives of WMC, Veterans Administration, Selective Service and industrial leaders, is a summary of the man—what he was before he came into the Army and what the Army has made of him. All men and women leaving the service are individually interviewed when Form 100 is executed. Additional counseling is entirely voluntary and is offered only to those men who request it. An Army of millions has millions of individual questions, problems and plans. The goal of the War Department is to analyze the veteran's abilities in terms of civilian occupations and give such information as he requires to get him started in the right direction. However, this is only a preliminary to the work of employers in industry.

The first task of the Army interviewer is to study the serviceman's accumulated records of qualification and summarize and evaluate them in terms of civilian utilization. At the time of induction, the reception center evaluated the recruit in terms of Army needs; the veteran must be re-evaluated in terms of the needs of civilian industry, business and agriculture. From its knowledge of each component part of every military job, the Army is best equipped to do this. Civilian governmental agencies, local welfare groups, and individual employers can place the man on the specific job, but they cannot know so well the nature of his military duties or skills and the ways in which the skills may be converted to civilian job family groups.

While in some cases the military service period may be of little significance occupationally, in many others it will represent an addition of new skills, or an improvement of old ones. For many young people, the military experience will be a major factor in their vocational adjustment, since they entered the service before they could acquire very definite civilian work experience. Many others, who will be seeking employment, left school to enter the service and have no background of civilian work.

Of great help to those concerned with the problem of placing returning veterans in civilian jobs is the publication entitled *"Special Aids For Placing Military Personnel in Civilian Jobs,"* which can be obtained from the Superintendent of Documents, Government Printing

(*Please turn to page* 162)

Well Worth Waiting For!

Marmon-Herrington's new DELIVR-ALL is the talk of the trade. And little wonder! For DELIVR-ALL is an entirely *new kind* of vehicle —everything you ever hoped for in a delivery truck . . . *and more.*

Designed specifically for frequent-stop delivery service, DELIVR-ALL has a detachable and interchangeable front-wheel-drive power unit that eliminates rear axle, drive shaft and frame. The result is a short-wheelbase truck with a low, wide, unencumbered floor and the highest possible ratio of cubic capacity to wheelbase. Operated with equal facility from either standing or seated position, driver fatigue is substantially reduced, speed and efficiency of service importantly increased.

We hope soon to be building sufficient DELIVR-ALLS to meet the already heavy demand. Meanwhile, we suggest it will pay you well to hold off buying new delivery equipment until DELIVR-ALLS are available. For complete information, see any Marmon-Herrington dealer, or write us for illustrated literature.

Low, wide, unencumbered floor, from front to back—Extra wide doors—Large cubic load capacity.

Detachable and interchangeable front-wheel-drive power unit, for easy servicing and preventive maintenance.

DELIVR·ALL

MARMON-HERRINGTON COMPANY, INC. • INDIANAPOLIS 7, INDIANA

1946 CROSLEY has "STAMPED" ENGINE

•

NEW ENGINE IS REVOLUTIONARY IN FABRICATION BUT NOT IN DESIGN; FLEETS NEEDING SMALL-TYPE VEHICLES for SPECIALIZED PURPOSES MAY FIND this NEW JOB of INTEREST

THE new 1946 Crosley automobile, recently announced, features a brand-new engine that may be of more than passing interest to fleet maintenance men, since it involves a rather revolutionary type of construction. Besides, the car itself, "commercial" models of which are said to be in the offing, features a number of new developments of general automotive interest.

The new engine is a 4-cylinder, water-cooled job, rated at 26½ h.p. at 5,000 r.p.m. Bore and stroke is 2½ x 2¼ inches, with a compression-ratio of 7½ to 1. Valves are of the overhead type, operated by an overhead camshaft, driven by a bevel-gear drive by means of a vertical shaft at the front of the engine. This shaft is drilled, to carry oil under pressure to the five camshaft bearings. A new type of high-strength cast-iron crankshaft is used.

The revolutionary feature of this engine is in the method of fabrication. No castings are used, except for the upper half of the crankcase, which is of cast aluminum. The cylinder "block" which is bolted on to the crankcase, is made principally of sheet steel stampings, copper-hydrogen-brazed in a special furnace. Cylinders are of alloy steel tubing, as are the cam-follower guides, while such parts as cylinder heads, intake and exhaust ports, valve guides and water-jackets are made of plain sheet steel stampings.

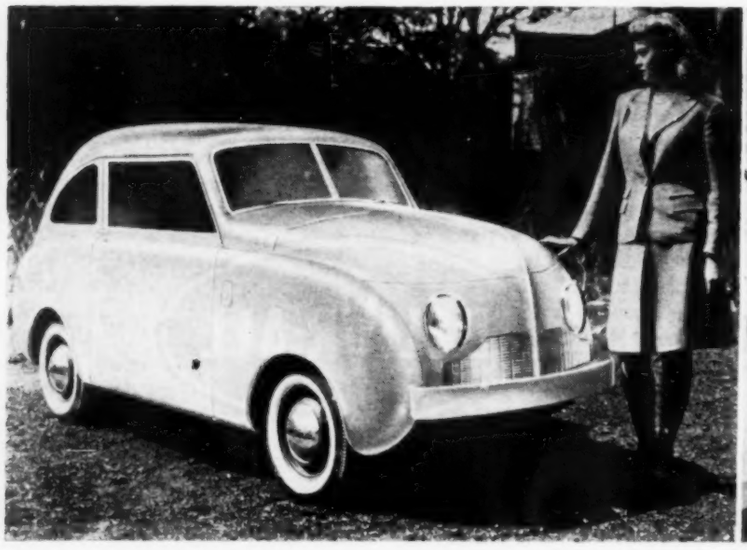
Powel Crosley, Jr., holds the 59-lb. engine, without accessories.

After the entire block is assembled, the parts of which number about 125 pieces, held in place by shrink fits, spot-welds, or crimping, the unit is copper-brazed in a special furnace, making virtually a one-piece job. After machining, the block weighs about 14 pounds. The entire engine, without accessories, weighs but 59 pounds. Complete with all accessories, including generator and starting motor, the engine weight is given as 138 pounds.

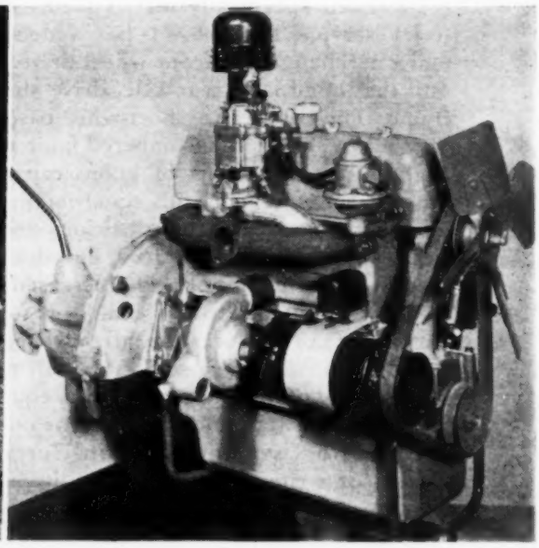
Another interesting feature of the new engine is the treatment accorded the inside of the water-jacket

(*Please turn to page* 168)

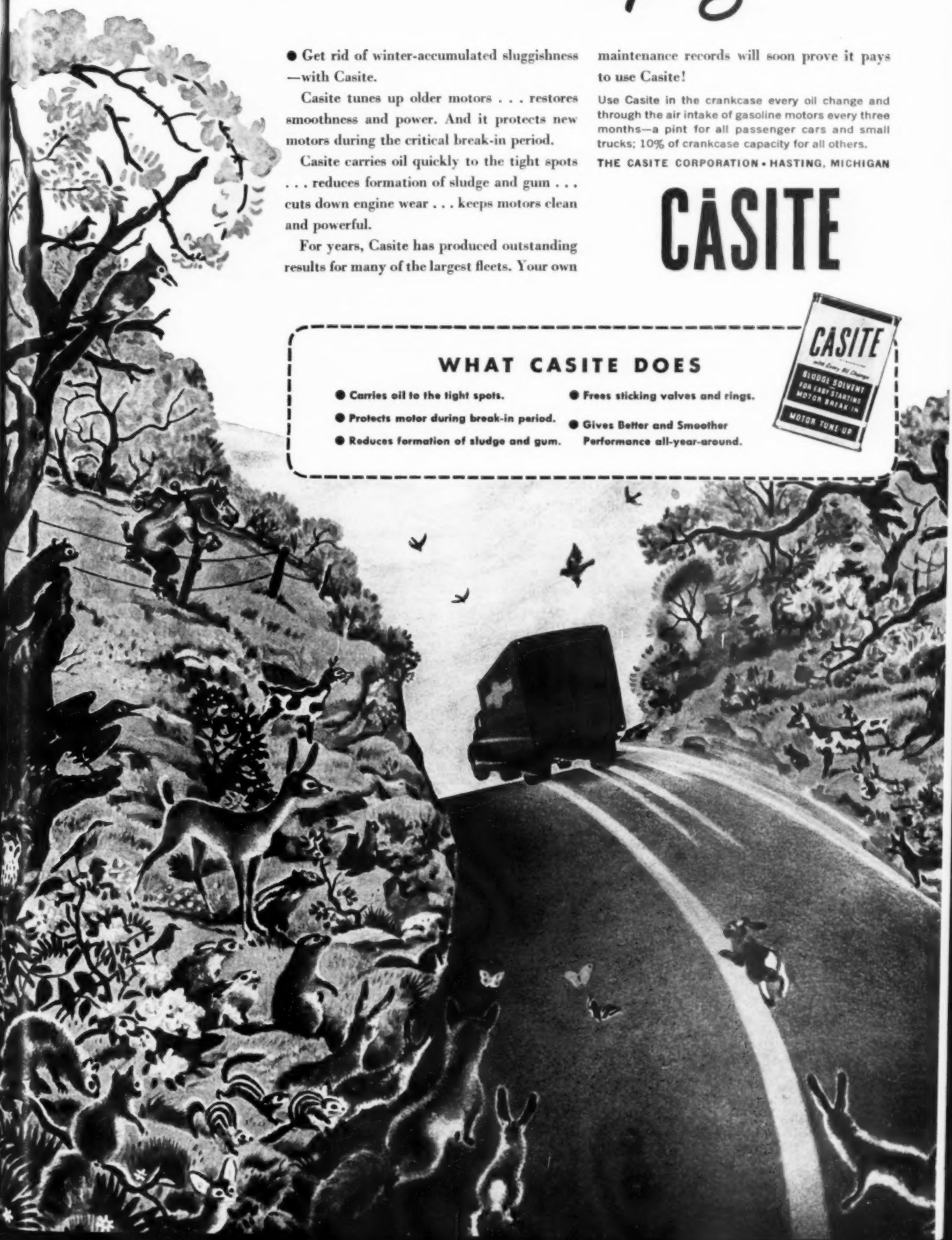
Size of the new car can be visualized by comparing it with size of girl.



What the new power-plant looks like with all accessories.



for Power that Zooms in the spring..tra la!



● Get rid of winter-accumulated sluggishness —with Casite.

Casite tunes up older motors . . . restores smoothness and power. And it protects new motors during the critical break-in period.

Casite carries oil quickly to the tight spots . . . reduces formation of sludge and gum . . . cuts down engine wear . . . keeps motors clean and powerful.

For years, Casite has produced outstanding results for many of the largest fleets. Your own maintenance records will soon prove it pays to use Casite!

Use Casite in the crankcase every oil change and through the air intake of gasoline motors every three months—a pint for all passenger cars and small trucks; 10% of crankcase capacity for all others.

THE CASITE CORPORATION • HASTING, MICHIGAN

CASITE

WHAT CASITE DOES

- Carries oil to the tight spots.
- Protects motor during break-in period.
- Reduces formation of sludge and gum.
- Frees sticking valves and rings.
- Gives Better and Smoother Performance all-year-around.

NEW SYSTEM HEATS and VENTILATES CABS

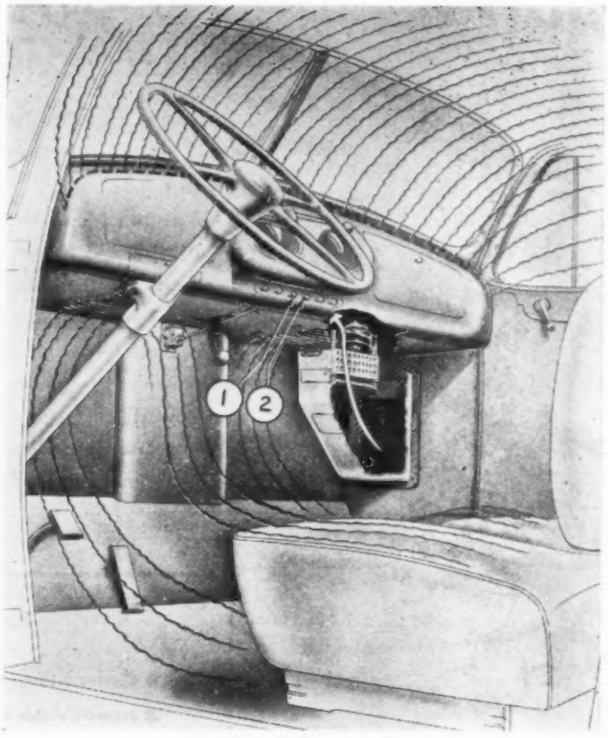
•

EVANS PRODUCTS DEVELOPS NEW TRUCK CAB SYSTEM THAT HEATS, VENTILATES, DEFROSTS, DE-ICES, DE-FOGS, Etc., AND ALSO PROVIDES COOL AIR in HOT WEATHER.

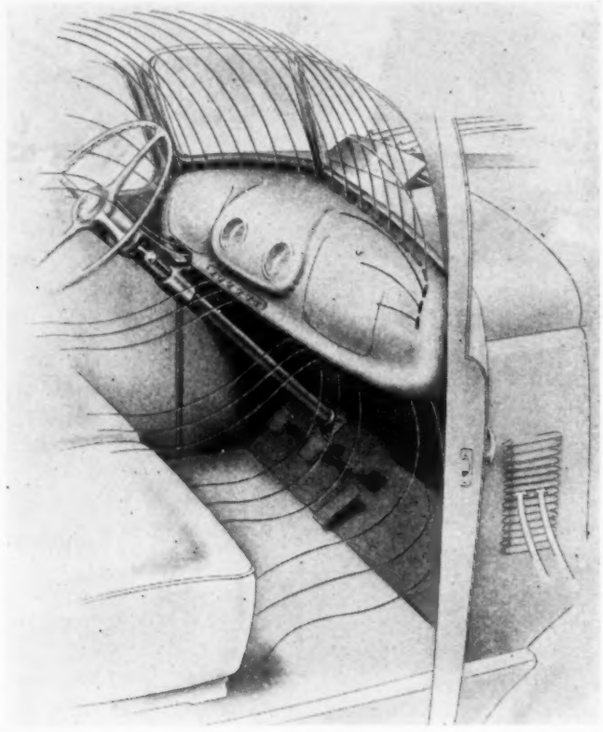
A BRAND-NEW and somewhat revolutionary system of heating truck cabs has just been announced by Evans Products Company, Detroit, Mich. It is called the "Evans System" and the manufacturer claims that it will not only provide heat, but will also ventilate, defrost, de-ice, de-fog and "pressurize" truck cabs, as well as cool them in the heat of summer.

The new system uses a "plenum" chamber. (Webster describes this word as pertaining to a system of ventilation in which the air is forced into a chamber at a pressure greater than the outside pressure, so that any leakage is, therefore, outward rather than inward.) The plenum chamber is obtained by sealing off the area under the instrument panel of the truck cab.

Fresh air, introduced through a weatherproof opening in the right or left side panel of the cab, is heated by a hot-water core and forced into the plenum chamber by an Evans Airfoil Fan. Openings in the plenum chamber can be closed, adjusted and directed to control the release of heated air in winter or cool air in summer. The plenum chamber can be tapped anywhere to deliver air at any number of desired locations. With simple modifications, the motor fan assembly can be placed to fit any truck cab with either right or left-hand drive. In southern climates, where heat is not required, the Evans System can be installed without the heater core and without production changes.



THE cut-away view shows the location of the fan and air intake. Fig. 1 shows the Temperature Control. Fig. 2 is the Air Control.



THE opening below wheel directs fresh air directly at the driver in summer. The air enters through vents indicated by the arrows.

Instead of the customary two defroster outlets, defroster nozzles, defroster hose and defroster blower, a series of small slots can be used. These can extend across the entire width of the top of the instrument panel, resulting in complete defrosting of the windshield and directing air to the side windows. In extremely cold weather, all air outlets except the defroster louvres can be closed, to clear up badly-iced glass areas. Under normal conditions, with the Evans System, there is little tendency for any visual obstruction due to fogging or icing, as sufficient fresh air is introduced constantly to eliminate humidity in the cab, according to Evans engineers.

Eliminating hot blasts of air, the Evans System creates a constant air flow from numerous openings, gently flooding the truck-cab with heated air. A positive-acting thermostat, adjustable for any temperature desired, maintains constant and accurate automatic control of cab temperature. The thermostat automatically turns-on or turns-off the flow of hot water to the heater.

Discomforting drafts are eliminated by the built-up pressure within the cab, which constantly forces air *out*, thus preventing drafts due to in-leakage of air. Carbon monoxide fumes, the proven cause of many a truck crash, are likewise kept out. Fresh air is

(*Please turn to page* 70)

War-Proved Power

for Post-War Hauling

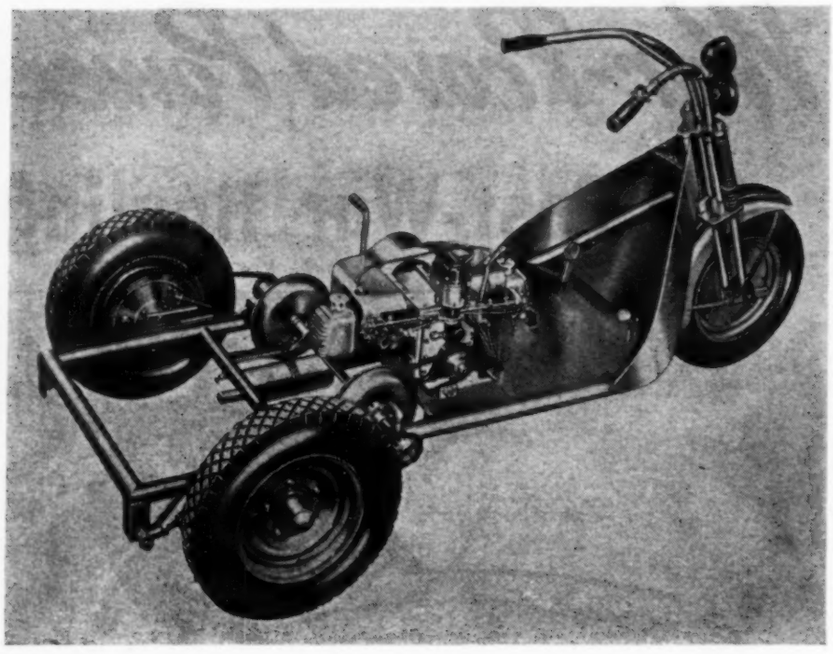
You really have *pulling power* when you get a GMC under that heavy load! For its rugged, reliable, economical engine is a "blood brother" to the power plant of nearly 600,000 GMC military vehicles. You can count on this battle-tested, war-proved power to handle your heaviest hauling jobs . . . to give you peak performance on cross-town and cross-country runs alike.

And that's not all! This ruggedness and stamina is part and parcel of every other GMC feature. Springs, axles, clutches, transmissions and brakes are designed to give models in each capacity range a maximum of strength and long-lived, economical performance.

GMC's wide range of models from ½ to 20 tons offers an ideal truck type for every type of transport job . . . pick-ups, panels, stakes and platforms . . . light, medium and heavy duty trucks and truck tractors . . . standard and cab-over-engine designs . . . optional equipment to fit individual hauling requirements. Get a GMC and you get a truck that's built for the job.

THE TRUCK OF VALUE **GMC TRUCKS** **GASOLINE • DIESEL**

GMC TRUCK & COACH DIVISION • GENERAL MOTORS CORPORATION



HERE's the chassis of a brand-new three-wheeled "truck", which recently made its appearance on the Pacific Coast. It was designed especially for light pick-up and delivery.

NEW ½-TON 3-WHEELER MAY HAVE "FLEET APPEAL"

LIGHT PICK-UP UNIT UTILIZES FLUID DRIVE WHICH ELIMINATES CLUTCH, TRANSMISSION and DIFFERENTIAL — CAPACITY, ½-Ton, 23 Cu. Ft.

A BRAND-NEW idea in a light, 3-wheeled pick-up and delivery vehicle has recently been announced on the Pacific Coast by Toolcraft Manufacturing Co., Huntington Park, Calif. It is called the "Firebaugh Special" and is said to have incorporated in it the results of three years of research and production know-how, plus the latest ideas in mechanical and hydraulic drives.

Described by its makers as an important contribution to low-cost delivery, it is said to handle half-ton payloads of 23 cubic feet and to be capable of traveling 35 miles per hour. The gasoline mileage is claimed to be as high as 60 miles per gallon, while the dual fluid drive which it utilizes, makes it extremely simple to operate. Another feature is that many of the parts making up this vehicle are the same as standard automobile parts, such as may be obtained from the stocks of Ford, Chevrolet and Bendix dealers.

The new vehicle is powered by a two-cylinder, four-cycle, air-cooled engine, with cylinders set opposed. It is rated at 8½ horsepower. It has dual carburetion; valves in head; front and rear main bearings of the Timken roller bearing type; pistons and cylinders cast-iron; while connecting-rods are of bronze alloy.

Looking at the upper photograph on this page we can observe that the engine is set with the crankshaft running across the chassis, with cylinders set horizontally, one pointing towards the front and one towards the rear. We also observe that there is a sprocket mounted on the right-hand end of the crankshaft and that the power is transmitted directly, by means of a chain, to a cross-shaft in back of the engine. Mounted on this cross-shaft are two fluid drive units, one at each end. And at the outer ends of this fluid drive shaft are two more sprockets, which transmit the driving power, independently, to each of the rear wheels, also by means of sprockets and chain. Thus there is no need for clutch, transmission or differential, since the double fluid drive unit performs the functions of all of these.

Further reference to the chassis photograph reveals that there is a kick-type starter, magneto ignition,

(*Please turn to page* 166)

ONE use for the new three-wheeler is shown here. Fleet operators may find a unit of this kind handy for dispatching orders, parts and mechanics from one shop to another.

it's on FULL contact — it STAYS flat

Metals can be mischievous. In the molecules of a blanked-out distributor arm there may be tiny stresses and strains that nobody can foresee. That arm can be assembled in a distributor and adjusted and tested for perfect contact. But later, those restless strains can warp the arm, just a little—but enough to pull the arm clear of the point, or bend it down too much—enough to cause an arc that burns up the tungsten, and gets the engine out of time.

That bad characteristic is SERRATED-*out* of Filko distributor arms. Indented diamond-shaped serration, both sides, makes the arm perfectly flat, AND SETS THE METAL MOLECULES TO STAY THAT WAY FOR GOOD.

Such "extra values" are typical with Filko. Like making the contacts in Filko Starter Switches of phosphor bronze for better performance, longer life, no oxidation. Like Filko's custom of meeting OR EXCEEDING original equipment specifications on Condensers, Rotors, Caps, Dimmer Switches and Relays, Starter and Generator Brush Sets, Graphite Bronze Bushings for generators, starters and distributors. Build up YOUR business on the *extra values* Filko builds into Filko products!... F & B Manufacturing Co., 4248 W. Chicago Ave., Chicago, Illinois.

Filko **IGNITION PARTS** *for all Cars!*

Distributor Repair Parts, Coils, Generator Repair Parts, Starter Repair Parts, Dimmer Switches and Relays, Timing Devices, Graphite Bronze Bushings for Generators, Starters and Distributors.

1630

FOR POSITIVE START AND GO USE IGNITION PARTS BY FILKO

DRIVE-CHAIN OILER

● We are indebted to W. J. Peters, Manager of Service Tank Lines, Los Angeles, Calif., for this illustrated shop hint—an automatic oiler for chains on chain-drive trucks.

As shown in the accompanying photo, the body of the oiler is made of 4-inch iron pipe, with a fill spout of 2-inch tubing, all welded together. Note the venting-cap and also the brass pet-cock for draining. It is secured to the chassis frame by welding.

This all-welded oiler is a shop-constructed gadget that gives good sprocket-and-chain lubrication, and almost any heavy oil can be used in it—even old crankcase drainings, as some operators will use. The oil is fed to the sprocket by means of a piece of copper tubing, bent as shown, and controlled by a standard brass lever valve.

●

OIL AND RUBBER

● Even though you might now and then run into a special rubber gasket which might be made of synthetic rubber, you are warned to exercise great care with gasket compounds, and never to use oil or grease on a rubber or rubber-compounded gasket.

Rubber is *not* injured, however, by graphite or glycerine. But you'd better not use such compositions on *both* sides of a rubber gasket, since this may cause slippage, skidding, and perhaps an early blow-out, warns the Glycerine Producers Association.

START WITH FAST-CHARGER?

● Fleet operators sometimes find it necessary to store trucks and other vehicles outside during cold weather, and often it is very difficult to start such cold motors. Many of them have asked the question, "Can a fast-charger be used as a booster to crank hard-starting motors?"

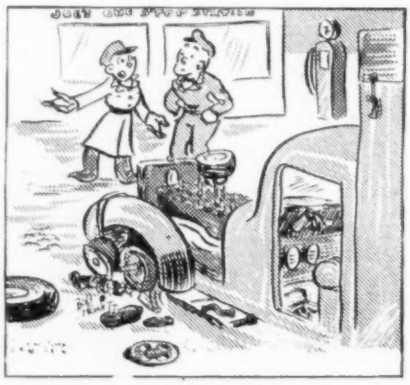
The Willard engineering department answers this question for us this month, with the following suggestions:

A fast-charger can be used in this manner, although no use of service equipment for purposes other than those for which it was built, can be fully recommended.

All that is necessary is to connect the fast-charger to the battery as if the battery were going to be fast-charged. Then the charge control knob is turned to the right, until the meter indicates a charging-rate of not over 50-amperes. This initial maximum of 50 amperes must not be exceeded, as the charger output will be almost doubled when the starter switch is closed, due to the decreased resistance of the circuit.

It may be necessary to use a charging-rate lower than 50 amperes, to avoid opening the circuit-breaker and stopping the flow of current. With the aid of the current received from the fast-charger, the battery should be able to crank the motor.

It must be remembered, however, that as much as 300 amperes may be required to crank a motor and the fast-charger can only be used as a booster, working in conjunction with the battery. If the battery has lost most of its capacity, it is unlikely that the motor will start.



"Better take it to a garage. I think the starter's jammed—or something."

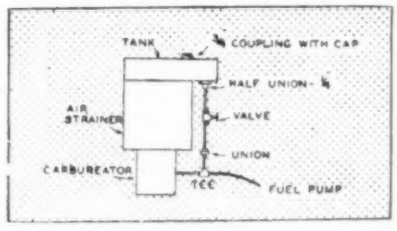
●

EMERGENCY GAS TANK

● Welder Art Rand had some trouble with one of his trucks, it seems. The fuel pump would lose its prime, so he built a small supply tank and mounted it atop the air cleaner, over the carburetor. He tells how he did the job:

"I used 18-gauge steel for the tank. On the bottom I welded in half of a ¼" union. On top I welded in a ¾" coupling, after sawing it in two. This is the way it works:

"The tank holds 1½ gallons and has a throw-valve between tank and carburetor. If the fuel-pump goes haywire on a trip, or refuses to pump some cold morning, you just open the valve and the engine will start immediately, on the gas from the emergency tank. When the fuel-pump starts working, you shut off the valve, or, if on a trip, you will still have over a gallon of gas to get you to a repair station."



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THE DEW DOES IT

● It's the dew—or moisture of the air—condensing on the finish of a car, truck or bus at night, that is especially harmful to the exterior finish. . . . Maybe you knew this, but anyway, it's better to keep your vehicles stored *inside* at night. . . . If this isn't possible in your set-up, at least keep your own personal car inside. It'll save the finish. . . . Rainstorms, somewhat paradoxically, are not quite as harmful as over-night dew, scientists say.

BRAKES CAN'T FREEZE

IF THEY'RE ALL HYDRAULIC

There's nothing to freeze in a HYCON Brake, because it's *all*-hydraulic—no vacuum or air in its operation. Moisture in air tends to condense in "booster" cylinders. When the temperature drops, it freezes. The hydraulic fluid used in *HYCON Brakes will flow freely at sub-zero temperatures.* HYCON hydraulic power is continuous and needs no "boost" from vacuum or air or any other means. The secret is a *second* piston contained in the compound cylinder itself.

Positive braking control reduces skidding and tire-scuffing

When trucks skid on icy roads, blame the brakes. When wheels lock and slide the tires, blame the brakes. Without *positive control,* brakes grip harder than the driver intends. HYCON Brakes deliver braking pressures in correct proportion to pedal pressures, because they are 100% hydraulic.

HYCON

Compound **CYLINDER**

Eliminates brake lag . . . improves safety factor . . . simple and quick to install . . . cuts tire wear and fuel consumption...reduces maintenance.

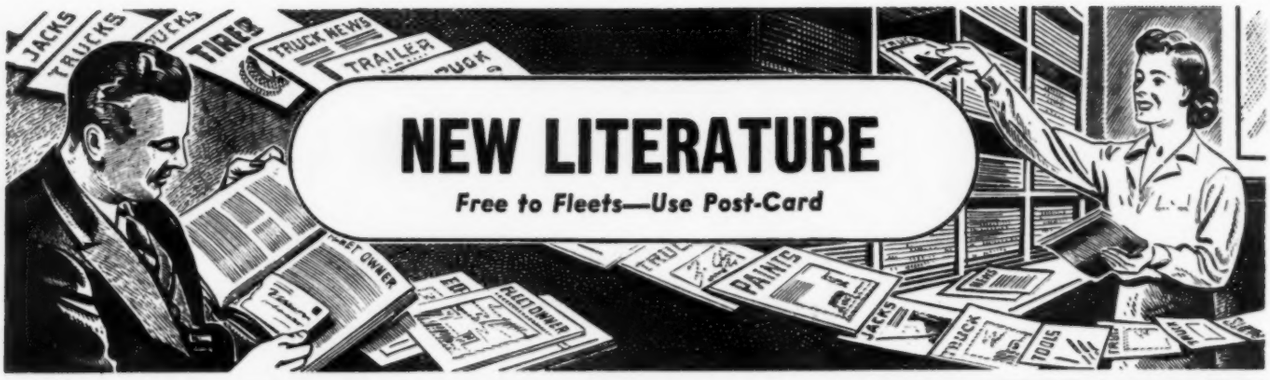
Install and Compare

For savings in gasoline consumption, tire mileage, cost of installation and maintenance, *send for a Demonstrator Unit.* Now available to replace 1¼" and 1½" Di. original equipment master cylinder. Order from your local power brake distributor, or write direct to The New York Air Brake Company, 420 Lexington Ave., New York 17, N. Y.

Look for this Registered Trade Mark

THE NEW YORK AIR BRAKE COMPANY

420 Lexington Avenue, New York 17, New York



NEW LITERATURE

Free to Fleets—Use Post-Card

351. Free 28-page Booklet of Beautiful Aircraft Portraits

There's more to this than meets the eye. . . . In addition to a number of beautiful airplane portraits, in full color, of popular planes, this booklet also contains a series of articles on the chemistry of cleaning. . . . It is offered *free* to those interested in such problems as corrosion-prevention, paint-removal, engine overhaul, preparation of aluminum surfaces, etc. . . . We believe that fleet maintenance men qualify. . . . Number 351 on our post-card will bring you a copy promptly, while the supply lasts.—(*Turco*).

•

352. Booklet Describes Additives in Non-Technical Language

Here is another of those lubrication booklets that have proved so popular in this department. . . . This one contains a complete, down-to-earth discussion of the various chemical additives which oil companies put in your heavy-duty oils to make them stand up better. . . . The full text of this booklet appears in this month's issue in the form of a feature article, but you may find it more handy to have this material in booklet form—for ease in filing. . . . Number 352 on our post-card brings a free copy promptly, without obligation.—(*Texas Co.*).

•

353. New High-Strength Steels Described in New Booklet

What the practical fleet man should know about body design and the fabricating advantages of low-alloy, high-strength steels, is presented in this 24-page booklet. . . . It tells how the new steels enable a *lighter* sheet steel body "shell" to carry a greater load, in such things as trucks, buses, etc. . . . Sections on drawing, forming and welding, in addition to the design data, make this booklet a *real* "how-to" piece of literature. . . . Just mark No. 353 on our post-card if you'd like a free copy mailed promptly.—(*Armco*).

•

354. Booklet Describes New Distributor-Governor Set-Up

Ignition Engineer Mallory has a fine reputation for his contributions to the automotive world. . . . He has just completed an 18-page booklet which provides quite a bit of non-technical information on a new combination distributor and governor for use on any engine. . . . Mr. Mallory calls it "*a distributor with a robot mind that governs the engine speed better than the driver can*" and his booklet looks more like a feature article, than a bit of advertising material. . . . At any rate, if you want to be informed on Mr. Mallory's latest development, just mark No. 354 on our post-card and mail; the book will be sent quickly and free.—(*Mallory*).

•

355. Jet Propulsion Explained in Interesting New Booklet

We do not expect (and neither do you) that many trucks will soon be running around on jet-propelled engines. . . . This 32-page booklet is being offered just as a matter of general information. . . . It is well illustrated and describes in non-technical language how a jet engine operates and some of the things that science is doing to improve this new source of power. . . . Number 355 on the post-card brings a free copy.—(*Thompson*).

•

356. New Way to Test Cooling Systems with Simple Device

This is a 4-page broadside which illustrates and describes a new, inexpensive device for checking the *entire* cooling system for leaks—radiator, engine block, hose, etc. . . . This is known as a "leak detector" and it is claimed that there never before has been anything like it. . . . It can also be used to free clogged gas lines, check vacuum wipers, test carburetor float needles, etc. . . . Learn all about it by marking No. 356 on our post-card; the literature will be mailed promptly.—(*System*).

•

357. Four Folders Show New Bodies & Hydraulic Hoists

Four attractive and informative bulletins on dump bodies for light and heavy trucks, hydraulic telescopic hoists for same, twin-arm hoists and platform conversion hoists, have just reached our desk. . . . They illustrate and describe the post-war line offered by a leading manufacturer of this equipment and incorporate more than 30 different improvements in design and construction, over pre-war models. . . . If interested, jot down No. 357 on our post-card and they will be mailed promptly.—(*Heil*).

•

358. Air Compressor Book and Pneumatic Tool Catalog

Now that shop equipment is again becoming available, new catalogs of what you can *get* are beginning to blossom forth. . . . Two from one company have just been sent to us. . . . One covers a complete line of pneumatic tools, including many interesting automotive types. The other is virtually an encyclopedia on garage-type air compressors. . . . Both also contain some valuable shop data on the subject of compressed air, in addition to the catalog information. . . . Number 358 on our post-card brings *both* of them to you, without obligation.—(*Ingersoll-Rand*).

•

359. Steam-Detergent Cleaning Illustrated and Described

Steam-detergent cleaning is not exactly an "Aladdin's Lamp", but it is said to be a modern cleaning method that has effected considerable savings in time and money, on many different maintenance cleaning jobs. . . . Here is a 28-page, pocket-size booklet that should help you decide *quickly* whether or not steam-detergent cleaning can help in *your* shop. . . . The booklet is thoroughly illustrated and covers many automotive shop operations—giving "the why and the how". . . . Number 359 on our post-card brings a free copy promptly.—(*Oakite*).

•

360. Free Book on Mechanical Repair of Cracked Blocks

During the war the ODT called it "Cold Welding"—but it isn't welding at all. . . . It's a patented mechanical method of repairing cracked engine heads and blocks. . . . In this new 12-page booklet there's a special section with illustrations and diagrams devoted to the "how" and "why". . . . If you'd like to keep up-to-date on engine repairs, you'll want a copy of the booklet. . . . Number 360 on our post-card brings you one, free for the asking.—(*Kerkling & Co.*).

IF YOU HAVEN'T YET TRIED USING THIS SERVICE, THE RESULTS MAY SURPRISE YOU

MORE POWER TO YOU WITH *FULL POWER!*

TOMORROW'S RINGS TODAY

A different type ring for each groove — each ring has its job and does it — delivers **FULL POWER.**

When you install Moog X-Plus Piston Rings you give your customers FULL POWER results. That means more power to you in your business — more success — more satisfied customers. The modern new style design of X-Plus is a business builder that is geared to 1946 methods.

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ASK US ANOTHER!

(You Ask 'Em—We Answer 'Em)

All questions are answered promptly by mail. Those believed to be of general interest to other readers are published on this page, without mentioning the inquirer's name.

ALUMINUM FILTER MESH

● *To the Editor: Some time ago you had an article in your magazine regarding the use of aluminum alloy wire crimp in oil-bath air cleaners and engine oil breather caps, in which it was stated that Ford engineers had found this material to increase engine efficiency and cut down varnish.*

Could you kindly advise us where this aluminum alloy wire crimp can be purchased? We have checked various supply companies and wire manufacturers and none of them have any information relative to this material.—W.A.D., Chicago, Ill.

● *The Answer:* We understand that aluminum alloy wire crimp is made by The American Air Filter Company, Louisville, Ky. This information comes to us from the Aluminum Company of America.

●

HOW MANY MECHANICS?

● *To the Editor: Your recent questionnaire on shop equipment and tools, has caused us to wonder whether or not you have any information on how many vehicles, traveling a certain number of miles per year, could be handled by a mechanic, who would perform from 75 to 90 percent of the maintenance and repair work on them?*

I have checked maintenance literature and cannot find anything on this subject. I realize that there are numerous factors that would enter into the picture, such as size of equipment, miles traveled, conditions under which they operate, etc.

However, I am interested in knowing whether there is a "yardstick" that lists the approximate amount of work which a mechanic might be expected to do, assuming, of course, that the necessary repair tools are made available.—R-O-G., Chicago.

● *The Answer:* We are sending you by mail a chart that was gotten up some years ago, showing the number of mechanics, foremen, superintendents, etc., required for fleets having 10, 20, 30, 40, 50 and 100 vehicles. We believe that this "yardstick" is still good.

Some time ago we made a survey, in which it was disclosed that, among the fleets replying, the average number of vehicles serviced per mechanic ranged from 12 to 16 vehicles. In other words, in the small fleets, the number of vehicles per mechanic was higher than in the larger fleets. An average, among all the fleets surveyed, showed 15.31 vehicles per mechanic.

●

INFORMATION ON TRAILERS

● *To the Editor: The U. S. Office of Small Business has received an inquiry from a small businessman, as follows, and would like to have the answer to it, if you can give it:*

"We desire information on trends in the construction of automotive freight trailers, especially information on body construction, tire and rim sizes, weight distribution and types of equipment designed for tandem trailers. . . . Will the trends towards uniformity of state laws regarding transportation materially affect the future design of trailers?"

Your comments and suggestions on the above will be welcomed and will be transmitted to the inquirer.—H. E. Leeper, Office of Small Business, U. S. Department of Commerce, Washington, D. C.

● *The Answer:* We will answer the last question first, the answer to which is, obviously, "Yes". Except for the fact that up to the present there has not been what might be exactly called a "marked" trend towards uniformity of state laws. This is a condition which everybody is striving to bring about (except, perhaps, the railroads) but to-date there is a sad lack of uniformity in size-and-weight laws among the states. But some progress is being made. Of course, uniformity in state size-and-weight laws will have a profound effect upon trailer design and manufacture.

The other information requested would require quite a discourse on the subject, and we feel that the question should be put before The Trailer Manufacturers Association, whose address is: National Press Building, Washington 4, D. C. Or, you might find an executive of one of the trailer companies who could give your client a detailed discourse on the subject. Many new things are about to "pop" up in trailer developments and a close perusal of future issues of this publication might also reveal them.

●

WANTS SPOT VULCANIZER

● *To the Editor: We have a fleet of 14 trucks and 2 trailers. For some time we have been troubled with curb cuts and cuts due to debris, etc., found on construction jobs, on most of the side-walls of our tires.*

Our tire sizes run from 32 x 6 to 11.00 x 24 and while we send out serious cuts to be repaired, we find this a lot of trouble to remove the tires and send the work out, tying up the truck in the meantime.

In short, we wonder if you know of any spot vulcanizer that we can use in our own shop for filling in small cuts where the cord has not been cut? We understand that there is a hand-type spot vulcanizer on the market that we could use for this work. Can you tell us where one might be obtained?—L.B.C., Newark, N. J.

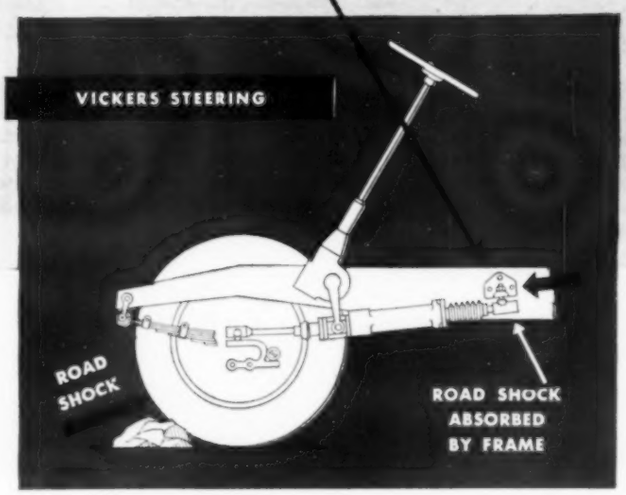
● *The Answer:* We believe that there are several of these spot vulcanizers on the market, but we are not exactly certain that they can be used without removing the tire from the vehicle. . . . You might try the following concerns: Ashworth Tire Specialty Co., Memphis, Tenn.; James C. Heintz & Co., Cleveland, Ohio; Miller Mfg. Corporation, Anderson, Ind.; Rockville Vulcanizer Equipment Co., Long Island City, N. Y.

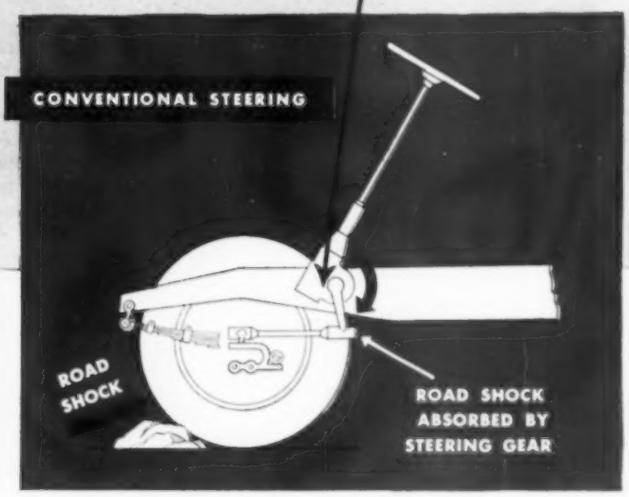
WHATEVER YOUR QUESTION

If We Don't Know the Answer
We'll Get It for You!

VICKERS Hydraulic POWER STEERING

Transmits Road Shock Thrusts to the *FRAME... instead of to the Steering Gear*





With Vickers Hydraulic Power Steering, no road shock can be transmitted to the steering gear and to the driver . . . road shock thrusts are transmitted to the frame. A vehicle can be driven over the curb, through sand, and on rough ground with no "fight" from the wheel. A flat tire will not cause swerving. A light touch on the steering wheel is sufficient at all times.

Among the many other important advantages of Vickers Hydraulic Power Steering are: greater driver efficiency by reducing fatigue to a minimum, easy application to existing chassis designs, automatic overload protection for both hydraulic system and steering linkage, and 15 years of successful operating experience on trucks, buses, road machinery, etc. Ask for Bulletin 44-30 which contains complete information about the Vickers Hydraulic Power Steering System.

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Application Engineering Offices: CHICAGO • CINCINNATI • CLEVELAND • DETROIT • LOS ANGELES • NEWARK
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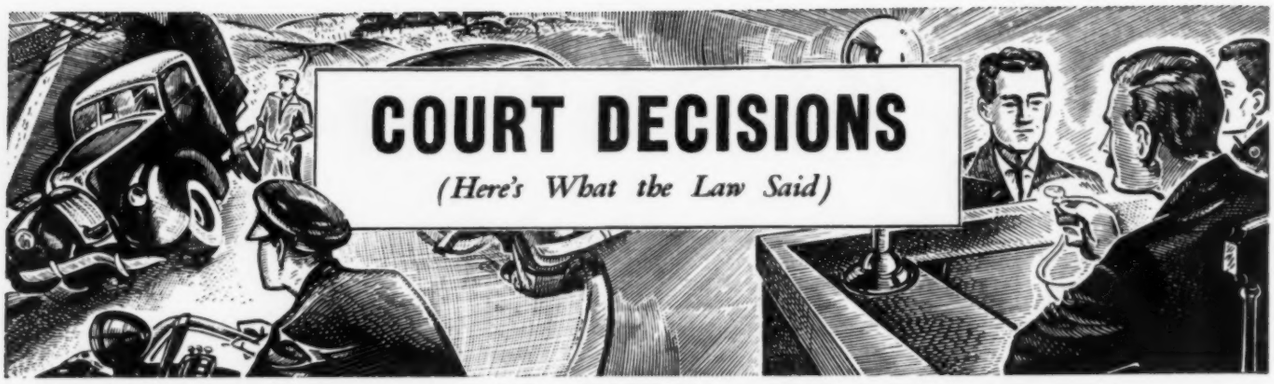
VICKERS Hydraulic POWER STEERING is Simple . . . Compact . . . Easily Installed



COURT DECISIONS

(Here's What the Law Said)

A Question of "Negligence"

THE Knickerbocker Fleet was engaged in hauling materials for the Ajax Contracting Company, which had a contract to repave a viaduct in a New York city. . . . One day one

of the Ajax employes left a loose paving block on the surface of the completed roadway. . . . One of the Knickerbocker trucks struck the block, through no carelessness of the driver, went over the viaduct, and wound up a total loss. . . . Then the Knickerbocker Fleet sued the Ajax Company for the value of the truck.

"It is for you to say whether leaving the paving block on the surface of the completed roadway, as set forth in the evidence in this case, was or was not negligence on the part of the Ajax Company," the judge told the jury when the case came to trial. "It was," the jury decided. . . . "We'll appeal," the Ajax lawyer threatened, and the appeal came on for hearing before the New York Court of Appeals.

"Leaving the paving block on the street under these circumstances was the proximate cause of the accident, and the verdict of the jury must be sustained," the Court said.

•

The "Conditional" Sale

A CALIFORNIA truck dealer had sold a truck to John Doe by a conditional sale; that is, the ownership of the truck remained with the dealer until full payment, and the dealer had the right to repossess the truck if Doe failed to make the specified payments. . . . However, the dealer sold the truck on the strength of false and fraudulent representations which would have justified Doe in rescinding the contract or suing for damages.

But, Doe, after learning that these representations were false and fraudulent, continued to use the truck in his business and made no claim for damages. . . . Then, Doe sold the truck to Richard Roe by concealing the fact that he (Doe) still owed the dealer for the truck. . . . The dealer, then attempted to repossess the truck from Roe.

"Doe's ten payments behind, according to the contract of sale," the dealer pointed out. . . . "That may be, but you sold the truck to Doe by fraudulent representations, and that's a good ground for rescinding the contract," Roe countered. . . . "That may be, but Doe is the only one who can take advantage of it, and the right to rescind didn't pass to you with the truck."

"Fraud in the sale is waived by a purchaser who, after discovering that a motor vehicle is not as represented, keeps it and continues to use it, and makes payments or renews a note for the purchase price without objection or claim for damages," said a high legal authority in ruling in the dealer's favor.

•

Drivers Must be Over 21

IF you operate in interstate commerce—regardless of whether you are a common carrier, contract carrier or private operator—do NOT employ a truck driver for such interstate work unless he is OVER 21 years of age and can pass the required physical examination . . . so says the Interstate Commerce Commission.

Only exception for this ruling—if you are a farmer carrying your own goods on your own trucks, you may employ drivers as young as 18 years of age, provided they do NOT operate vehicles in excess of 10,000 pounds gross weight.

•

The "Obliging" Servant

WHERE with the express or implied assent of the employer, an employee uses a vehicle which the employee owns in the discharge of his

duties, the employer will be liable for an injury occasioned by its negligent operation by the employee while acting within the scope of his employment," says a standard American authority on Master and Servant.

In a Michigan case, a delivery fleet carried insurance, and the manager had instructions from the insurance company to notify the hospital in case of an accident to an employee and to have the hospital send an ambulance for the injured man.

One day an employee was injured and another employee (who came to work in his own car), offered to drive the injured man to the hospital.

"I'll take my own car and get him to the hospital by the time the ambulance would get here," the employee suggested. . . . "Guess you'd better; he looks serious to me," the manager agreed.

On the way to the hospital, the obliging employee ran over and killed a $3,000 prize-winning dog, and the owner sued the delivery fleet for the value of the dog.

"Our manager acted contrary to instructions and outside the scope of his employment," the fleet's lawyer argued. . . . But the Michigan Courts decided that the owner of the deceased dog had a good case.

THERE are many legal principles which no fleet owner can afford to ignore, and these rules *can* be explained in simple language, without resorting to the jargon of the courts. This department will undertake to explain such general points of the law, without using any legal terminology. Each item is based upon an actual decision handed down in an American court, but all names are fictitious.

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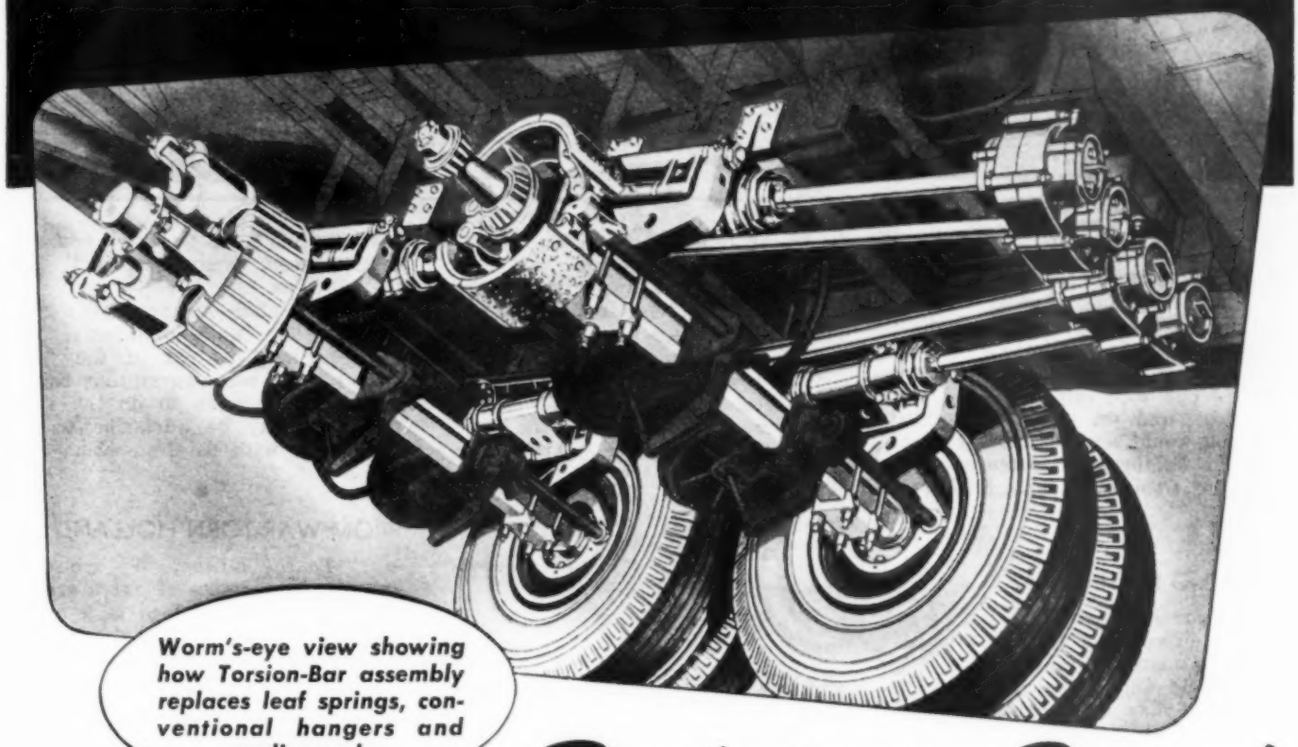
By Rotor Swift

THE NEW FRUEHAUF GRAVITY SUSPENSION TANDEM



Worm's-eye view showing how Torsion-Bar assembly replaces leaf springs, conventional hangers and radius rods.

Revolutionary Design!

Road-Tested 2 Years Under All Conditions—Amazing Savings In Maintenance and Tire Cost!

● **PERFECT SPRINGING**—"feather soft" when light—with spring action exactly proportional to the load—**leaf-springs eliminated entirely.**

● **BRAKING SMOOTH AND SURE**—no chatter—no wheel hop—Torsion Bar Springs don't know the brakes are applied.

● **GREATER STABILITY AND SAFETY**—on the Fruehauf Gravity Suspension Tandem the Trailer actually hugs the road on turns. Also, axles ride road contours and bumps—independently of one another—to provide a "sure-footedness" unmatched in any other Trailer. Increases load stability!

● **LONGER TIRE LIFE**—you forget about destructive tire scuffing. Axles "follow the curves" automatically in all normal in-and-out, on-the-highway travel.

● **LOWER MAINTENANCE**—all bearings are lubricated for life. Radius rods, leaf springs, conventional hangers have all been discarded in this revolutionary design.

For complete facts about the performance and construction of this new Tandem, just ask at your nearest Fruehauf Branch for the "Tandem Booklet". Or, if you prefer, a penny postcard will bring this informative "working model" by return mail.

Fruehauf Trailers

A TRUCK IS LIKE A HORSE — IT CAN PULL MORE THAN IT CAN CARRY

World's Largest Builders of Truck-Trailers

FRUEHAUF TRAILER CO., Detroit 32

8 Factories—60 Factory Service Branches

"Engineered Transportation"

LIKED NEYHART ARTICLE

● *To the Editor:* A recent issue of your magazine, FLEET OWNER, contains an article on the work done by Professor Amos Neyhart, which was of great interest to us. In some manner our copy of this issue has been lost, and we would appreciate it if you would send us another copy. *—C. L. Feldbrugge, Gateway City Transfer Company, Inc., LaCrosse, Wis.*

●

COOLING SYSTEM HINT

● *Dear Mr. Fischer:* I have been a reader of your FLEET OWNER magazine for many years and feel that I should advance a little information relative to your recent article *"Radiator Condenser-Tank Helps Save Anti-Freeze."*

In the January issue of FLEET OWNER, under *"Letters to the Editor"*, Mr. T. F. Aust, Traffic Manager, Standard Brands, Ltd., Toronto, Ontario, Canada, states that they have found the condenser tank very satisfactory. To this I subscribe 100 percent, as we are using them on our 680 vehicles.

However, the cooling system above the regular water-level must be kept tight. Any leak in the radiator cap or connections to the condenser tank will result in the expanded liquid in the condenser tank *not* returning to the radiator.

To determine the tightness of the entire cooling system, we use a new tool, made by the System Engineering Company, and I am attaching one of their pamphlets for your convenience. *(This is a simple pressure testing outfit.—Ed.)*

From experience, we have found it desirable to use copper tubing in hooking up the condenser tank, using short pieces of rubber tubing at the radiator overflow and at the condenser tank. By pressure-testing the cooling system in the fall and spring of the year, attaching the tester to the overflow tube of the condenser tank, this will assure you of a tight cooling system.

In order to maintain a tight radiator cap, it is advisable to remove it as few times as possible. To determine that enough coolant is in the cooling system, we have found that by squeezing the top radiator hose, a slushing of the coolant in the upper radiator tank will be heard. This saves removing the radiator cap. Time is saved by this method when many cooling systems have to be checked. *— B. H. Eaton, Division Motor Vehicle Supt., Bell Telephone Company of Pennsylvania, Pittsburgh, Pa.*

●

WANTS "OUT-FRONT" BINDER

● *To the Editor:* We are a subscriber to your magazine FLEET OWNER and we also take a great deal of pride, not only in the fact that it is helping us in our work, but also in the fact that when the various personnel finish reading each monthly issue, that we place it in our reception office for various callers and business-men to read, who may have to spend a few moments there while waiting for their appointments.

We would appreciate knowing if you have a leather binder, as some magazines do, to furnish us as a courtesy folder, to keep each of your monthly issues on our desk in the reception room. We take a great deal of pride in this room and would like to have the cover for your magazine, as we know this would help the appearance of this room considerably.

If these are not regularly furnished, we would appreciate knowing if you have them for sale, and if so, the cost of same?—*C. Sachs, Joseph Behr & Sons, Inc., Rockford, Ill.*

● *Editor's Note:* We do not have these in stock as a regular issue. However, as we are quite pleased with the manner in which you wish to preserve each monthly copy, and your proposal is quite flattering, to say the least, we would suggest that you have one made up to match your reception room equipment, and send the bill to us.

In order that our generosity may not exceed the limits of practicability (and to keep us out of the poorhouse), may we suggest that should other readers wish to do the same thing, it may be advisable to get into touch with us first.—*Ed.*

●

FROM WAR-TORN HOLLAND

● *To the Editor:* We are sending you some copies of our magazine *"Beroepsvervoer"*, which is a magazine for all the road-haulers in the Netherlands. It has an issue of about 17,500 copies every fortnight and we hope it will have your interest.

Our paper is published by the Vakgroep Goederenvervoer langs den weg, which covers all of the 15,000 road-haulers in the Netherlands. The prime object of this organization is to defend the road-haulers against attacks by anti-road-transport drives.

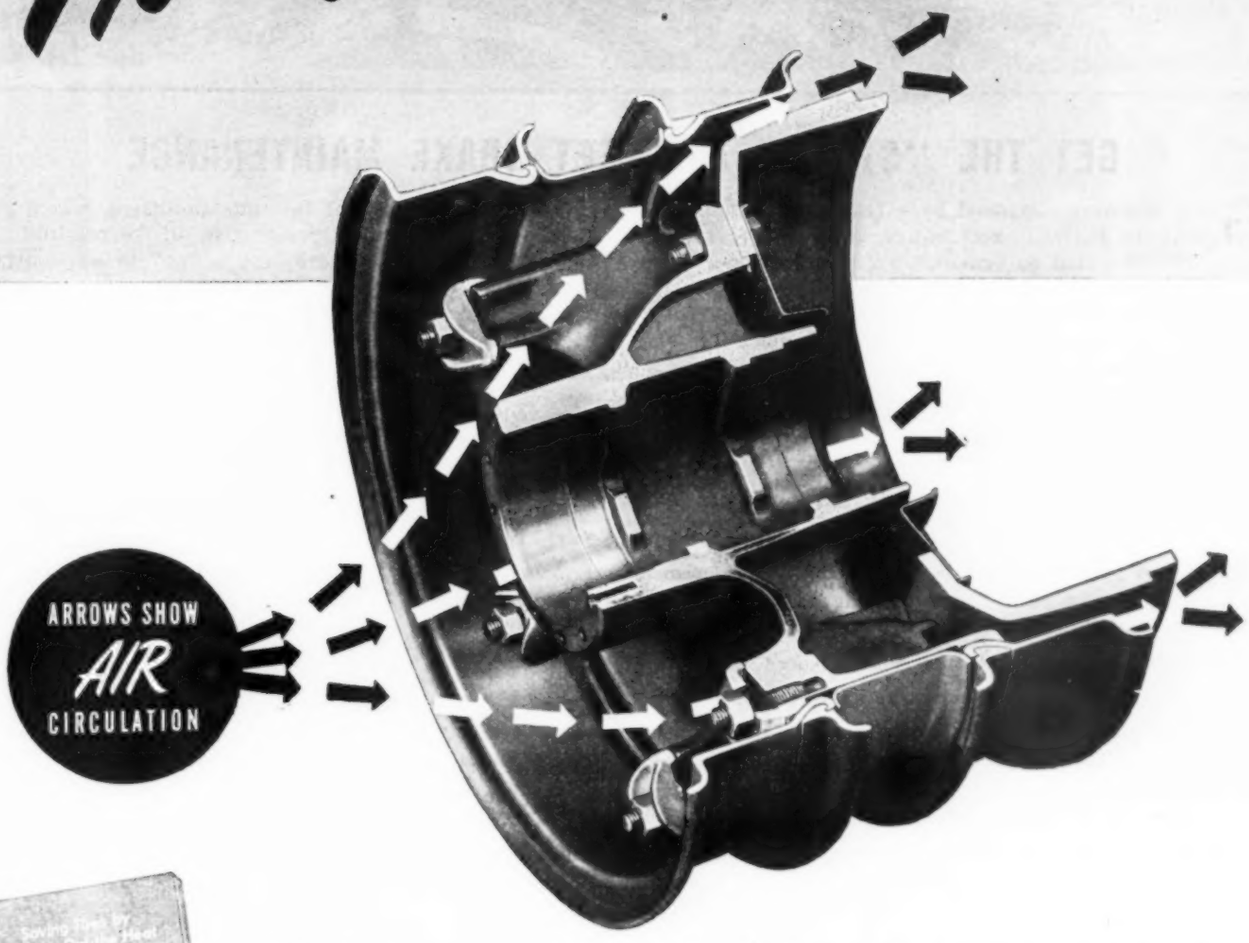
We are also sending you a copy of a poster now issued by this organization, which tells the public about the importance of the road-haulers; how they are helping to rebuild the country and how they are ready to do everything necessary to solve highway transport problems. This poster is used by our members on all of their vehicles.

As you probably know, the Germans have stolen away nearly 45,000 of the 55,000 trucks which we had in 1940. After our liberation, about 10,000 trucks were imported, 4,200 of which were U. S. Army trucks of the type GMC CCKW-353.

We would like to come into contact with all of the trucking magazines in the United States by exchanging our publications, and should at any time you think we can help you in giving you any information about road transport in the Netherlands, please do not hesitate to call upon us.—*W. A. Kerkum, Chief Editor, Vakgroep Goederenvervoer Langs Den Weg, Antwerp, Holland.*

WRITE A LETTER TO THE EDITOR — GET IT OFF YOUR CHEST!

Proof that Dayton Wheels Run 47° Cooler!



Write for New 12-Page Bulletin

Here's the whole story on why Dayton Wheels run cooler, lengthen life for brake linings and tires. Contains valuable data on other Dayton products. Write now for your copy.

It's a fact. Exhaustive tests made with precise temperature recording instruments definitely show that wheel heat is reduced as much as 47° by the improved design of Dayton Spoke Type Cast Steel Wheels. *And cooler wheels mean longer life for tires* and brake linings. After 32 years of leadership—Dayton Wheels are still best. Specify them on new equipment and replacements.

THE DAYTON STEEL FOUNDRY CO., DAYTON, OHIO

Dayton SPOKE TYPE CAST STEEL Wheels

Dayton Brake Drums
Drums assembled to the wheels at the factory give more perfect concentricity.

Dayton 5th Wheels
Standard equipment on many trailers. Quick coupling. Positive operation.

Dayton Landing Gears
Made in both hydraulic and mechanical types.

GET THE "STORY" on FLEET BRAKE MAINTENANCE

GRIM warnings sounded by safety officials indicate that the highway accident curve is *rising*, calling for more attention to brakes. . . . The fleet operator, to be sure, is not the *chief* offender, and "faulty brakes" may be found, more often than not, on *private* cars. . . . Nevertheless, it is well to check up on current brake practices in fleets.

That is the object of this questionnaire, which has been designed for extreme *ease* of responding; a check here, a "yes" there, and a "no" in some other place. . . . In return for your help, you get a copy of the summary, *months ahead* of those who don't participate. . . . No names are ever mentioned or disclosed to *anyone;* your cooperation is urged!—*Editor.*

(Please tear out and mail to The Editor, Fleet Owner, 90 West St., New York 6, N. Y.)

Question No. 165—Brake Linings & Drums

Where is *most* of your brake work done? ☐ In own shop; ☐ In outside shops; ☐ Shoes only sent out.

How do you prefer to purchase brake lining for replacement? *(Please check below)*

☐ In sets; ☐ Have shoes exchanged; ☐ Buy new shoes with lining; Other methods? .....
☐ In rolls; ☐ Have shoes lined outside; ☐ Buy wide sheets and cut up; .....

Do you specify the *make* of brake lining desired, when ordering? ☐ Yes; ☐ No; ☐ Sometimes.

If so, what *make* (or makes) of brake lining do you prefer?.....*(Confidential, of course)*

About how many sets of brake lining *(one per vehicle)* do you use per year?.....*(Rough figure will do)*

What about finish-grinding new brake lining when replacement is made? *(Please check below)*

☐ Finish-grind all brake lining in own shop. ☐ Don't pay much attention to finish-grinding.
☐ Have shoes relined and finish-ground outside. ☐ Would like more information on this subject.

If you finish-grind brake lining jobs in your shop, what *make* machine is used?.....*(Confidential)*

What is your *approximate* vehicle mileage, per set of brake lining? *(Rough over-all average will do)*

Trucks .....*Mi.* Pass. Cars .....*Mi.* Buses .....*Mi.*

Where is *most* of your brake drum reconditioning done? ☐ In own shop; ☐ In outside shops; ☐ None.

If in own shop, what *make* of brake-drum lathe or grinder do you use?.....*(Confidential)*

What is your *approximate* vehicle mileage per set of drums, *including* reconditioning mileage? *(Check below)*

Trucks .....*Mi.* Pass. Cars .....*Mi.* Buses .....*Mi.*

What *make* (or makes) of brake drums do you prefer?.....*(Confidential, of course)*

What is your *main* source of supply on brake lining and drums? *(Please check ONE only, if possible)*

☐ Automotive Jobber ☐ Brake Distributor Other sources of supply? .....
☐ Vehicle Dealer ☐ Direct from Mfr. .....

REMARKS: *(Air your pet peeves here, if you wish)*.....
.....
.....

How many vehicles in your fleet? *(Please indicate below)*

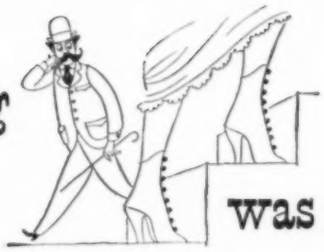
Trucks..... Tractors..... Trailers..... Pass. Cars..... Buses..... Misc.....

Mail THIS COUPON FOR FREE SURVEY

Name of Firm.....
Address .....
City and State.....
Your Name ..... *Position*.....

1910

When a lady's stocking



was slightly shocking...

A nickel got you a tall beer back then, and a spot of free lunch besides. And you could stand with one pearl-buttoned shoe on the rail and watch them roll out the barrels of good Rheingold from the early Mack Truck above.

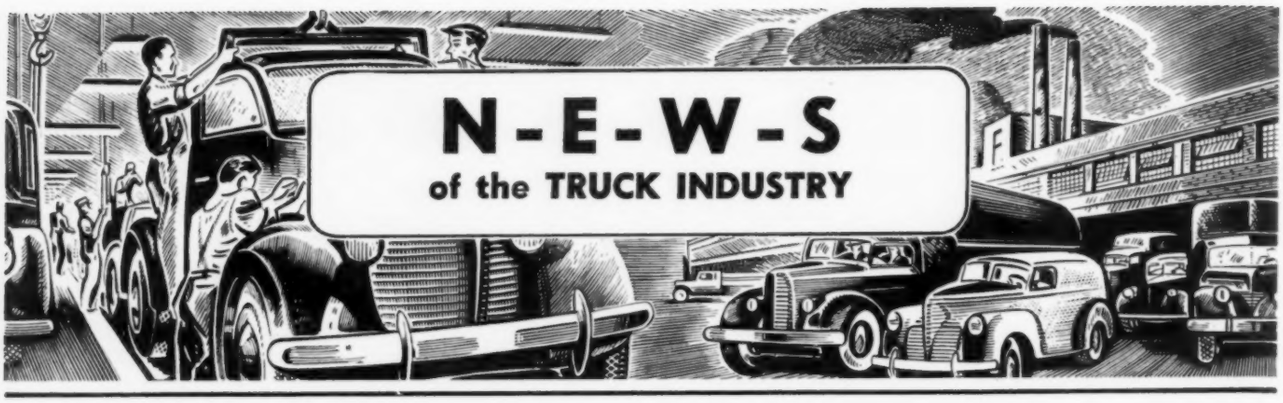
That was in 1910. Now, in 1945, Mack Trucks still work for the Liebmann Breweries, brewers of Rheingold Extra Dry Beer. Through the years, they have proved themselves dependable performers.

Put a Mack Truck to work for you, and you'll understand why so many long-established and successful companies have used Macks for nearly half a century.

Mack Trucks, Inc., Empire State Building, New York City. Factories at Allentown, Pa.; Plainfield, N. J.; New Brunswick, N. J.; Long Island City, N. Y. Factory branches and dealers in all principal cities for service and parts.

Mack
TRUCKS
FOR EVERY PURPOSE

Performance Counts



Ford's Expansion Program

THE Ford Motor Company announces the remodeling of two service parts and stock buildings at the company's Highland Park plant, the construction of a new sales distribution and parts branch building in Houston, Texas, a new assembly plant and parts depot at Atlanta, Ga., and the reacquisition of its branch plant at Norfolk, Va.

The Highland Park plants when completed, within the next three months, will be two of the most modern and efficient units for the delivery of service parts in the country, Ford officials stated. . . . The Houston branch building will serve as a sales distribution center for Ford, Mercury and Lincoln passenger cars and Ford trucks, as well as supply a complete line of passenger car and truck service parts and accessories to dealers in that area.

The Atlanta branch plans call for erection of a combination assembly plant with a wing to house sales showrooms and offices, and is to supply the Southeastern market with Ford passenger cars and trucks. . . . The Norfolk plant, which is to be completely reconverted, will assemble Ford cars and trucks.

•

FWD Company Recapitalizes

THE Four Wheel Drive Auto Company of Clintonville, Wisc., has announced a recapitalization program consisting of sale of over fourteen-thousand new shares of stock to be followed by a stock allotment of 100,000 shares. . . . Capitalization of the company, after distribution of these two blocks of stock, will be 300,000 shares with a par value of three million dollars.

•

Federal-Mogul Expands

A NEW address and construction of a new and larger plant, housing the administrative offices and all distribution activities of the division, is announced by Federal-Mogul Service, division of Federal-Mogul Corporation, Detroit, manufacturers of automotive bearings. . . . This new plant, conveniently located in relation to all of the company's mid-western factories, will receive, stock, sort, package and ship all of some 7000 numbers comprising the complete Federal-Mogul line. . . . It is expected to be completed and occupied this summer.

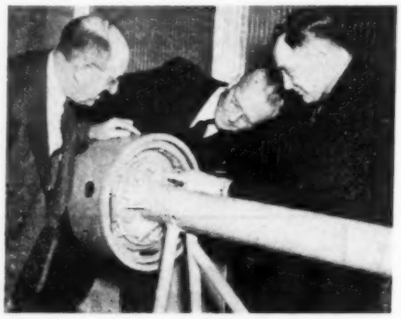
Truckstell Announces Expansion Program

THE Truckstell Company of Cleveland, Ohio, announces a program of expansion in products handled, personnel and general activities. . . . Howard H. Lynch, formerly Eastern Division manager, has been promoted to sales manager; W. F. Balzerick will continue as Western Division manager. . . . New appointments are: Charles L. Brower, Eastern Division manager; Loren W. Creed, Central Division manager, and Gilbert K. Smith, Southern Division manager. . . . Perfection Spring & Equipment Co. of Kansas City, have organized a new corporation, known as Perfection Equipment Co. . . . Axle and Equipment Sales Co. of Chicago now occupy a building at Moline, Ill. . . . Northwest Truckstell. Sales of Portland, Oregon, plan to open branches in Seattle and Spokane; Norman Page has been appointed general manager and Percy Black as sales manager.

•

Gloss Appointed New Departure Service Manager

EUGENE E. GLOSS has recently been designated service manager of ball bearings for New Departure Division of General Motors. . . . He succeeds Harold R. Goodale, who resigned. . . . In his new capacity, Mr. Gloss will act as sales manager of ball bearings for service and replacement, and will coordinate activities between the New Departure Division and the United Motors Service Division of General Motors Corporation, with headquarters at Bristol, Conn.



THIS new trailer axle with demountable spindle is one of the new products of "Feather-Ride, Inc.", a newly-formed corporation on the West Coast. . . . Company officials are giving it the once-over.

I.H.C. Starts Research Project

THE International Harvester Company announces the establishment in Chicago of a manufacturing research project devoted to the improvement of manufacturing methods and procedures for the entire International line. . . . It is expected that the new building formerly operated during the war by Foote Bros. Gear & Machine Corp. for the manufacture of aviation parts, will be equipped and ready to begin operations some time during the summer. . . . Their first major step in their research expansion program is in manufacturing research, and it was announced that International expects to find many ways by which they can build better products for their customers at lower costs.

•

Steigerwalt Joins Kaiser

THE appointment of A. K. Steigerwalt as manager of the parts and accessories division at Willow Run was announced recently by Kaiser-Frazer and Graham-Paige. . . . A veteran of 30 years in parts and service management, Steigerwalt will have charge of service parts and accessories for both the Kaiser and Frazer automobiles.

•

Named Manager of Export Sales

MACK Trucks, Inc., announces the appointment of H. E. Seanor as vice-president in charge of export sales. . . . Mr. Seanor joined the Mack organization in 1939 as a special sales representative in the firm's Chicago office. . . . He had been with White since 1915, with whom he remained until he joined Mack in 1939. . . . He has also served as advisor to the WPB, on the matter of off-highway trucks of giant size for use in mines and other off-highway projects.

•

Bus Assn. Appoints Anderson

AT a meeting of the Wisconsin Bus Operators Association held at Madison, Wis., recently, E. H. Anderson was appointed executive secretary for the association. . . . Mr. Anderson has been actively engaged in the bus industry for the past 18 years, and for the past 14 years, has held a supervisory position with the Greyhound Lines. . . . His headquarters is now at Madison, Wis.

An Important Message to the Truck Fleet Operators of America—

GENERAL TRUCK TIRES HAVE *PROVED* THEIR EXTRA EARNING POWER DURING THE MOST CRITICAL TIME IN TRUCK HISTORY

● AS NEVER BEFORE, **truck owners know the value of General's A-B-C approach to truck tire costs.**

A—A truck tire is not *one* thing...but *two*.

B—The *carcass*... representing about 75 per cent of the tire's original price... is a *capital* expense item.

C—The *tread* . . . constantly being worn off, used up, little by little, every mile the truck operates, is, like gasoline, an *operating* expense.

That's why General builds every carcass as a long-lived, shock-resistant base. With Generals, the economy of recapping is not an after-thought. It results from foresight in the original design and construction of the *carcass*.

Extra mileage is in-built. It comes not only from within the stronger plies themselves, but also from the method of bonding together all the plies into a single unit . . . with "shock absorber" action avoiding all damage from internal and external stresses.

Onto this rugged base, General applies its famous *balanced* tread . . . balanced with respect to all the characteristics of the carcass. The extra mileage performance of the combination is reflected in lower costs on the operating records of America's most cost-conscious fleet superintendents.

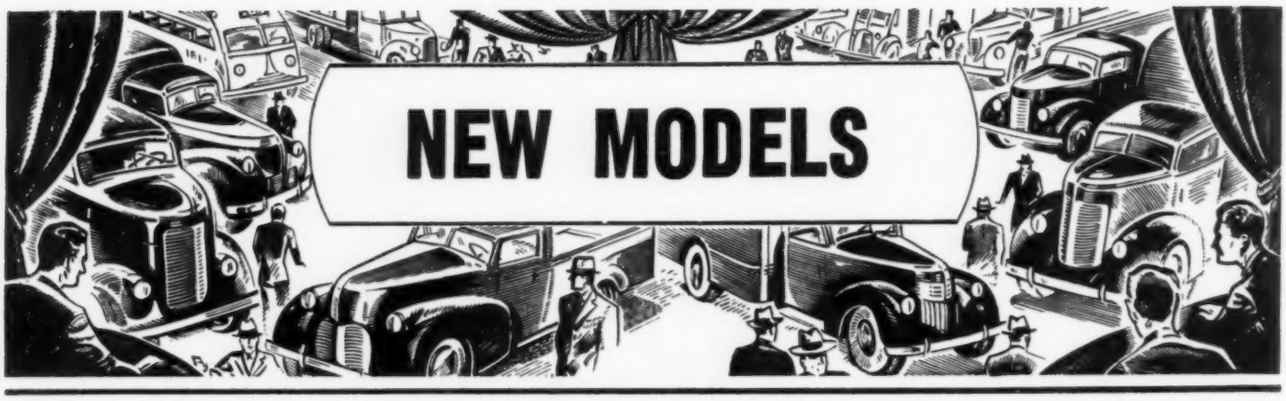
Experience during the most critical period in tire history has proved that General's approach is sound and that the formula establishes a new standard for true truck tire economy for the future. It applies to the tire problems of every type of truck-using business.

Consult your General Tire Dealer for the details of this plan for long-term tire economy . . . that begins to make more money for you the day you put it into effect.

THE GENERAL TIRE & RUBBER COMPANY, *Truck Tire Division* • Akron, Ohio

Plants also at WABASH, INDIANA • BAYTOWN, TEXAS • BARNESVILLE, GEORGIA • WACO, TEXAS • PASADENA, CALIFORNIA

MORE ORIGINAL MILES . . . MORE RECAP MILES



NEW MODELS

1946 Chrysler Line Ready

MANY improvements contributing to appearance, performance, safety and comfort are found in the 1946 Chrysler cars, now in the hands of

dealers. The line comprises six models, three powered by six-cylinder engines, and three by eights. So many improvements have been made and so many features added, that these 1946 cars can be properly described as "new."

The front-end has been redesigned. Front fenders "flow" into the body, producing the effect of a long one-piece tear-drop design, serving to accentuate the length of the car and to add to the streamlining. The rear fenders have been redesigned to harmonize with the front ones, the skirt covering more of the wheels.

New bumpers, finished in chrome, are used front and rear. These extend around the sides of the fenders, giving more protection. Bumper back bars are heavier and stronger, to permit lifting the car with the bumper jack supplied. Bumper guards are more massive.

The grille is of new design, with a low, wide arrangement of horizontal, chrome-plated bars and also several vertical bars in the grille openings. Parking lights are placed below the headlights, adding to safety, as they more nearly define the width of the car. Hood design and belt molding are also new.

Wheel size has been changed from 16 to 15 inches. Wheels are equipped with plastic white-wall wheel rings. Tires are 6.50 on the sixes and 7.00 on the eights. An entirely new braking system has been adopted. This is hydraulic, of course, with separate wheel cylinders in each front-wheel brake assembly. Increased effectiveness is claimed for this, without increasing drum size.

All 1946 Chryslers also have safety rim wheels as standard equipment. This type of wheel grips the tire, when it is deflating, in such a manner that it cannot easily come off the rim

(*Please turn to page* 170)

New Dodge Named "Power Wagon"

THE name "Power-Wagon" has been given to the new one-ton general-purpose truck announced recently by Dodge, as a civilian adaptation of the four-wheel-drive military vehicle which was built in such large numbers during World War II.

Hundreds of names were considered for the full-size truck which is said to have been engineered for rigorous work in many lines of industrial, agricultural, public utility, state highway and conservation department uses.

Forest H. Akers, vice-president and director of sales of the Dodge Division of Chrysler Corporation, said the new name was chosen because it so aptly describes the functions of the new 94-horsepower truck: a self-propelled power plant capable of supplying a wide range of industrial and agricultural power needs.

"It was the avowed purpose of the engineers and designers of the new

Dodge to create the most useful and versatile vehicle ever manufactured," Mr. Akers said. "How well they have succeeded is shown by the great variety of mobile and stationary power jobs it performs, in addition to serving as a haulage unit of unusual performance ability."

The Power-Wagon is capable of carrying a payload of 3,000 pounds in off-the-highway service, or over unimproved roads where ordinary trucks are restricted in their operation, according to Mr. Akers. In addition, this unit provides power for driving various items of auxiliary equipment.

A transmission power take-off is available with front and rear driveshafts. Through the front drive-shaft, this take-off drives a 7500-pound capacity winch mounted on the front end of the Power-Wagon. This is expected to find wide use on ranches, farms, in wrecker service, oil field work, lumbering, public utility service, highway and conservation work.

Through a tail-shaft drive located in the center of the rear cross-member, the power take-off will operate many items of equipment, such as corn and grain binders, combines and sprayers. When a 9-inch diameter belt pulley is attached to the tail-shaft drive, it will operate such items of auxiliary equipment as circular saws, silo-fillers, pumps, mixers, corn-huskers, threshers, separators and feed-grinders. Also available are an adjustable rear-mounted draw-bar assembly, and a pintle-hook for towing and pulling.

The Power-Wagon has a four-speed transmission and a two-speed transfer case, providing a total of eight speeds forward and two reverse. The closed cab provides needed driver comfort. A roomy steel express body 8 feet long, 4½ feet wide and 22¼ inches high, with special reinforced stake pockets, provides loading space for a wide variety of hauling needs.

Additional mechanical details for this new model, which has just been re-named, as above, will be found in this department of our January issue, on page 114.

•

New Plymouths Announced

FIFTY new improvements, 34 mechanical and 16 appearance, are featured in the new line of Plymouth cars for 1946. Ten different body types comprise the line. A four-door sedan, two-door sedan, five-passenger club coupe and a business coupe are available in either deluxe or special deluxe types. A convertible coupe and a station wagon are in the special deluxe line.

The front end has been completely redesigned and many engineering advancements, similar to those described on this page for the Chrysler cars,

are also found in the new Plymouths. The latter include the hydraulic brake improvement, the use of safety wheel rims, return to aluminum pistons and plated rings, and others.

Another safety feature is the safety-signal speedometer, which automat-

(*Please turn to page* 172)

Reliability

IS YOUR BUSINESS AND OURS

Your reputation for reliability is bound up in the faithful performance of your rolling stock—just as AC's is built on the performance of its spark plugs.

That's why AC's up-to-the-minute studies in Heat Range — AC's collaboration with the engineers who design your engines — AC's experiments with fuels, ceramics and alloys are of actual cash value to you.

To be specific: AC offers you longer electrode life—wider Heat Range per plug—less fouling caused by engine wear—less soot and carbon—less oxide coating. AC can give you spark plugs that perform better over a wider range of operating conditions — and make full use of the fuel you use.

All this adds up to utmost reliability in spark plug performance — an important factor in assuring reliability in your vehicles.

AC

SPARK PLUGS

SEND FOR AC SHOP MANUALS

Field Service Dept., AC Spark Plug Division, General Motors Corp.
910 Mott Foundation Building, Flint 3, Michigan

Gentlemen: Please send me at once, no charge, the AC Shop Manuals checked:

- ☐ HOW TO SERVICE SPARK PLUGS
- ☐ How to Service Spark Plug Cleaner
- ☐ How to Service Oil Filters
- ☐ How to Service Fuel Pumps
- ☐ How to Service Air Cleaners
- ☐ How to Service Speedometers
- ☐ How to Service Ammeters and other Instruments

FO-4

NAME_____

FIRM_____

STREET ADDRESS_____

CITY_____ STATE_____

Consultation Service Resumed

THE Meyercord Company of Chicago announces that a technical consultation service again is available to advertisers and other commercial users. . . . Since the outbreak of the war, the company's technicians and laboratories have been devoted to army and navy work, and recently have been released for civilian duty. . . . This consultation service now is available through all Meyercord branch offices in 30 cities in the United States and foreign countries.

•

Opens San Antonio Branch

THE U. S. Tires Division of United States Rubber Company has opened a branch at San Antonio, Texas, it was announced recently. . . . K. N. Carter, formerly located at the Cincinnati branch, has been appointed district manager of the new branch. He joined United States Rubber Company in 1940, as a salesman at Cincinnati.

•

Wheel & Rim Assn. Elects

AT the twenty-second Annual Meeting of the National Wheel and Rim Association, recently held in Chicago, John F. Creamer of Wheels Incorporated, N. Y., was elected president. . . . Other officers elected are Fred W. Dennerline, Indiana Wheel & Rim Company, Indianapolis, vice-presidents; and H. M. Young, Borbein-Young & Company, St. Louis, treasurer. . . . In addition to the officers, the following wheel and rim distributors were elected as directors: John Beller, Beller Wheel, Brake & Supply Co., Memphis; Robert Broxon, Rim and Wheel Service, Cincinnati; R. A. Flynn, Bearing & Rim Supply, Spokane; Ray Glaser, Carolina Wheel & Rim Company, Charlotte; C. L. Hiles, H. & H. Wheel Service, Detroit; Fred Prior, Southwest Wheel, Inc., Dallas; and R. H. Robblee, Six Robblees, Inc., Portland.

•

K-D Acquires Larger Plant

THE K-D Lamp Company, Cincinnati, Ohio, announces the acquisition of a new plant in Cincinnati which is to enable K-D to carry out an extensive expansion program. . . . The enlarged facilities will permit greater production of truck, trailer and farm machinery lighting equipment than has been possible by K-D in the past, company officials stated.

Bowers "Hotel" Completed

THE Bowers Battery and Spark Plug Co. announces the opening of the Bowers Country Club. . . . In order to overcome the present difficulty of securing hotel room reservations, C. P. Bowers, president of the Bowers Company, has converted one of two large homes on his Berks County estate into a guest house for out-of-town visitors to the Bowers Company.

•

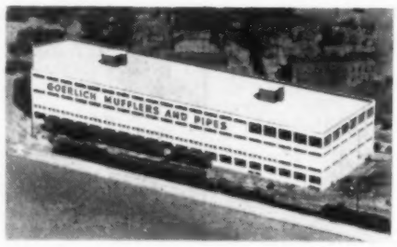
American Brake Shoe Expands

THE American Brake Shoe Company announces the inauguration of a $12,500,000 improvement and expansion program in addition to the $3,200,000 spent on plants and equipment in 1945. . . . The program includes seven new plants: a brake shoe plant, one for special iron castings, one producing alloy steel, two non-ferrous foundries, a new nonmetallic processing plant in this country, and one in Canada. . . . A laboratory for research in automotive and industrial friction materials is under construction. . . . Enlargement of their compressor plant is also reported.

•

Highway Safety Appliances Expands

THE Highway Safety Appliances, Inc., St. Paul, Minn., manufacturers of the Elston electric sander, announces the construction of a new $100,000 plant which, when completed, will house offices, display rooms and storage rooms. . . . The company expects to occupy the building by June, and plans to go into assembly-line production of its product at that time.



NEW Goerlich's muffler plant at Dowagiac, Mich., recently completed. . . . This firm makes replacement mufflers and tailpipes. The new plant features excellent truck and freight-car loading facilities.

Raybestos Launches Ad Drive

A NEW advertising campaign, based on a new idea in advertising brake lining, was launched recently by The Raybestos Division of Raybestos-Manhattan, Inc., Bridgeport, Conn. . . . Key medium of the program will be an extensive schedule in a large national weekly magazine, plus a large selection of trade papers in the automotive, fleet and industrial fields. . . . The theme of the campaign is developed in the story "*Full-Range*" Brake Control with an added safety feature "Check Brakes—Reline with Raybestos."

•

Auto-Lite Acquires New Plant

THE Electric Auto-Lite Company has acquired an additional foundry at Mt. Vernon, Ill., according to an announcement made recently by Royce G. Martin, president. . . . A new plant is now under construction at Sharronville, Ohio, and a battery plant is now being erected at Vincennes, Indiana, in addition to new additions to present facilities which are being erected on several other Auto-Lite plants throughout the nation, Mr. Martin said.

•

Brakebloc to Build New Plant

THE American Brakeblok Division of American Brake Shoe Company has announced plans for the manufacture of automobile and industrial brake lining material in a new plant to be built at Lindsay, Ontario. . . . The building and equipment, which is estimated to cost approximately $350,000, will manufacture a complete line of brake lining for use in buses, heavy and light trucks, and passenger cars as well as friction material for industrial applications.

•

Expands Adv., Promotion Plans

THE advertising and promotional campaign of Prest-O-Lite Battery Company, Inc., of Indianapolis, Ind., will be expanded during 1946, but will continue along the same lines as were launched in 1945, according to A. A. Feldman, sales manager. . . . Prest-O-Lite will utilize trade magazine advertising, spot radio announcements, direct mail campaigns to dealers, fleet owners, and consumers this year, as last year, and they plan to continue to enlarge their sales force and will open division offices as their plans demand.

QUICK HEAT FOR TRUCKS, INDEPENDENT OF ENGINE!

NEW! South Wind DELUXE TRUCK HEATER

● Unique modulating flow temperature control device "anticipates" temperature changes—adjusts heater operation to maintain preselected temperature in the truck or trailer.

Protect Perishables . . . Keep Windows Clear . . . Get Quick Starts in Cold Weather . . . Keep Drivers Safer, More Efficient

A FEW QUICK FACTS

- Maximum heat output of 20,000 BTU's per hour.
- Hot heat quick—in less than a minute.
- Works independently of the engine.
- Can be used to warm up engine for easier starting.
- Delivers more than 100 cubic feet per minute of warmed fresh air.
- Prevents fogging and frosting of windshield and windows.
- Burns gasoline from the fuel pump in a patented sealed metal chamber—the famous South Wind "sealed flame" principle.
- Always ready for use. Need not be disconnected in summer.

● OUT OF SOUTH WIND'S vast experience in developing heaters for tanks, PT boats and airplanes comes this new South Wind Deluxe Truck Heater.

You can operate this new kind of heater independently of the engine. It can be used to heat the engine for quick starts in cold weather. The automatic temperature control, which you can set and forget, not only protects perishable cargo, but also keeps your drivers comfortable and efficient. More than 100 cubic feet of warmed fresh air per minute keeps cab windows from fogging or frosting.

There are many types of installations to meet various operating conditions. Why not talk over your truck or trailer heating problem with our engineers? No obligation. Write to South Wind Division, Stewart-Warner Corporation, Dept. 930, Indianapolis 7, Indiana.

STEWART WARNER

South Wind

REG. U. S. PAT. OFF.

DELUXE TRUCK HEATER

L. C. Pursell has been appointed sales manager of the Eastern Division for Trailmobile Co., Cincinnati, Ohio

J. R. Rose has been appointed asst. sales mgr. of Wagner Electric's Automotive Equipment Div.

C. S. Vanderblue has been appointed general sales manager for Arrow Safety Device Co., Mount Holly, N. J.

J. G. Taylor has been appointed asst. Eastern Division mgr. for The General Tire & Rubber Co., Akron, Ohio.

M. F. Thoroughgood has been named West Coast regional representative for The Timken-Detroit Axle Company.

R. T. MacLaren has been appointed to handle the Michigan sales territory for Pennsylvania Rubber Co., Jeannette, Pa.

E. C. Shingleton has rejoined B. F. Goodrich Co., after 42 months in armed services, to handle sales promotion programs.

MOSTLY about MEN

Auto-Lite Makes New Appointments

TWO new supervisors and 19 new representatives have been appointed to the Merchandising Division of The Electric Auto-Lite Company. . . . The new supervisors are Joseph L. Libis, Midwest Division and Russell Higgins, Central Division. . . . Representatives are: Wallace Schloendorn, Jr., Felix Lerch, Jr., and Philip Cummings, Eastern Division; Robert E. Plamer and Franklin Maley, Midwest Division; Hollis Hoffmann, Stanley Hudson, Clarence Jensen, Vernon Kehring, Earl Hunt, Allen Hotchkiss, Daniel A. Now, Richard Rudolph, Fred Vanzo, Thomas Neal, Jr., Central Division; Norvell Coillot and Carl W. Albright, Southern Division; and William B. McCoy and Willard A. Sandor, Western Division.

•

Bear Makes Six New Appointments

BEAR Manufacturing Company has announced the appointment of three engineers, a personnel manager and two district representatives to their staff. . . . They are: Harold O. Holaday, James O. King and Elmer Benson, engineers; Carl Hoefker, personnel manager; and Walter M. Booth and Roy V. Cosner, representatives, whose districts are Indiana-Kentucky and Washington and Oregon, respectively.

•

Kearney Joins K-D Lamp Company

THE appointment of Geo. T. Kearney, formerly sales engineer of General Electric's Lamp Division, as New York-New Jersey district manager for The K-D Lamp Company, Cincinnati, Ohio, has recently been announced. . . . Mr. Kearney, who spent two years with the War Department on Radar maintenance, will have his office in K-D's New York headquarters at 55 W. 13th Street.

•

Goodwin Returns to Clark Tructractor

MAXWELL A. GOODWIN, lately a major on the staff of General Somervell, has returned to his prewar position as manager of the Chicago office of Clark Tructractor, division of Clark Equipment Company.

•

New Britain Appoints Southeastern Mgr.

NEW Britain Machine Company announces the appointment of Perc C. Birks as the Southeastern territory manager. . . . Mr. Birks will be in charge of hand tool sales in Florida, Alabama, Georgia and Tennessee.

Cumberland Rejoins Bear Mfg. Co.

IT has been announced by the Bear Manufacturing Company that Ian Cumberland has returned as the Bear representative in Eastern Canada. . . . Mr. Cumberland had served during World War II with the Fifth Canadian Armored Brigade, in which he had attained the rank of a brigadier-general.

•

Coffin Returns to American Brakeblok

GEORGE R. COFFIN has rejoined the sales staff of American Brakeblok Division of American Brake Shoe Company, after three years' service as executive officer of a navy repair ship in the South Pacific. . . . Mr. Coffin now handles original equipment sales of American Brakeblok brake lining to automotive and industrial manufacturers in the Midwest area, in addition to the sale of A-B-K lamented plastic products, which he concentrated on before entering the service.

•

Studebaker Names Two Representatives

TWO men who were prominently identified with government supervision of transportation during the war, have been named special representatives (commercial cars) by The Studebaker Corporation. . . . They are: Mel G. Barnes, who was formerly with ODT and had previously served with the South Dakota Public Utilities Commission. . . . Thomas A. Cunningham, who was recently chief of the truck division branch of WPB. Prior to the war Mr. Cunningham was a distribution manager for a car manufacturer.

•

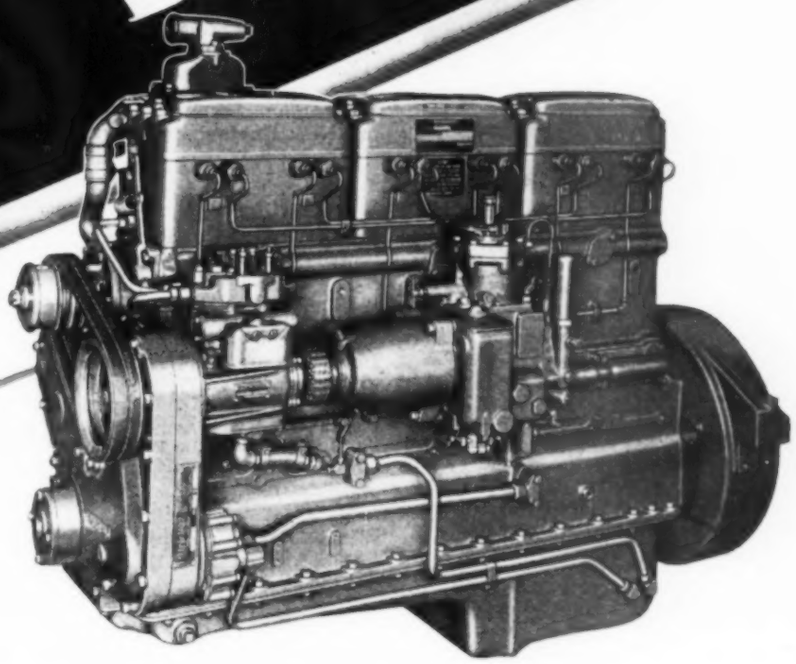
Studebaker National Accounts Appointments

PERSONNEL changes in the Studebaker National Accounts Division were recently announced as follows: R. E. Brennan, a veteran of World War I and II and who was recently retired as major, as sales representative. . . . W. H. Carpenter, who served for three years with the Army Air Forces in Europe, to the home office. . . . D. K. Plank, service representative in the midwestern region and formerly with export, as sales representative working out of Chicago. . . . J. G. Turnbull, formerly with the Radio Corporation of America, in Indianapolis, as assistant to C. H. Wondries, director of the National Accounts Division. . . . The division also announced the transfer of L. G. Cook to the Chicago office, as an assistant to George E. Hammel.

Maintain Higher Average Speeds

with

CUMMINS *Dependable* DIESELS



CUMMINS ENGINE COMPANY, INC., COLUMBUS, INDIANA

A. J. Cullen has joined the sales promotion staff of Universal C. I. T. Credit Corp., N. Y. (Formerly with Mack)

D. N. Miller has been appointed divisional sales manager for Trailmobile's North-Central territory.

Albert A. Frank has been appointed vice-pres. of Great American Industries, and Ward LaFrance Truck Div., Elmira, N. Y.

L. F. Carlson has been named manager of advertising and public relations for Oldsmobile Div. of General Motors.

Geo. W. Veale has been appointed general manager of the Eaton Manufacturing Company's Axle Division, Cleveland.

Irving F. Wagner has been made a vice-president of the Kellogg Division of American Brake Shoe Company.

R. T. Hickcox has been assigned to Los Angeles sales office for Chemical Products div. of The Goodyear Tire & Rubber Co.

Utermohlen Returns to American Brakeblok

IT was announced recently that R. F. Utermohlen has rejoined the Replacement Sales Staff of American Brakeblok Division of American Brake Shoe Company, after serving for two and a half years with the army in the European Theatre. . . . Mr. Utermohlen will handle the replacement sales work for American Brakeblok in the Memphis, Tennessee, and Birmingham, Alabama, territory.

•

Stoner Appointed Assistant Chief Engineer

SETH H. STONER has been appointed assistant chief engineer in charge of automotive and tractor applications for the New Departure Division of General Motors Corporation. . . . Previous to the war, Mr. Stoner was New Departure's executive engineer; since June, 1941, he has been on leave with the Navy. . . . In his new position, he will coordinate engineering development work on automotive and tractor applications with the various branch sales and engineering offices, with headquarters at Bristol, Conn.

•

Markley Appointed General Sales Manager

THE appointment of Frank R. Markley as general sales manager of Sun Oil Company, was announced recently by Samuel B. Eckert, vice-president in charge of marketing. . . . Mr. Markley, formerly manager of the company's industrial products department, will serve as assistant to Mr. Eckert in the conduct of all sales activities.

•

Bowers Battery Appoints Two

THE appointment of Earle E. Hafer to the post of purchasing agent of the Bowers Battery & Spark Plug Co., was recently announced. . . . Mr. Hafer was an automotive jobber for a number of years and more recently has held several public offices. . . . J. Russel Wolff has rejoined the Bowers sales staff, after serving three years in the Armed Forces. Mr. Wolff, as sales engineer, will serve the New England territory.

•

Reiser Named Division Manager

FRED REISER, JR., Cincinnati district manager for the Industrial Division of The Timken Roller Bearing Company since 1944, has been named division manager for all divisions of the company there, including Industrial, Steel, Automotive, and Service-Sales, company officials announced. . . . Mr. Reiser has been associated with the Timken company since 1933, holding various sales and engineering positions.

•

Edison Names Two Dist. Representatives

TWO district representatives, for the New York and Connecticut territories of Thomas A. Edison, Inc., were appointed recently, company officials announced. . . . Frank H. Trombley will cover New York State exclusive of Metropolitan New York and Joseph L. Shea will cover Connecticut and Metropolitan New York.

Appointments Made by Timken-Detroit Axle

ACCORDING to an announcement made recently by Ralph H. Trese, vice-president of The Timken-Detroit Axle Company, Neil S. Lincoln has been named sales manager of the Automotive Division; C. C. Bartell has been named sales manager of the Special Equipment Division; H. C. Maddux has been appointed sales manager of the Trailer Division; E. E. Weiss has been promoted to assistant sales manager of the Bus Division; E. F. Petsch and R. V. Hessler have been appointed assistant sales managers of the Eastern and Western Divisions, respectively; and J. H. Balog has been named manager of the sales office and B. B. Lewis, manager of the Sales Order Department.

•

Watson Now Eastern Regional Sales Mgr.

THE appointment of James W. Watson as Eastern regional sales manager of Nash Motors was announced recently by H. C. Doss, vice-president and general sales manager. . . . Mr. Watson has had many years of retail and wholesale experience in the high, medium and low-price car fields. . . . He has held positions with the Franklin Automobile Company, the Chrysler Corporation, and prior to joining Nash, he was Oldsmobile's assistant zone manager in Chicago.

•

Wedge and Robinson Promoted

FORD Motor Company recently announced promotions of E. J. Wedge to general superintendent of the Ford Highland Park plant and Harold Robinson to general superintendent of tractor manufacturing and assembly. . . . Mr. Wedge started with Ford in 1915. During the war he served as superintendent of the aircraft engine building. . . . Mr. Robinson joined Ford in 1922; he has served as superintendent of the Lincoln plant and held various executive posts.

•

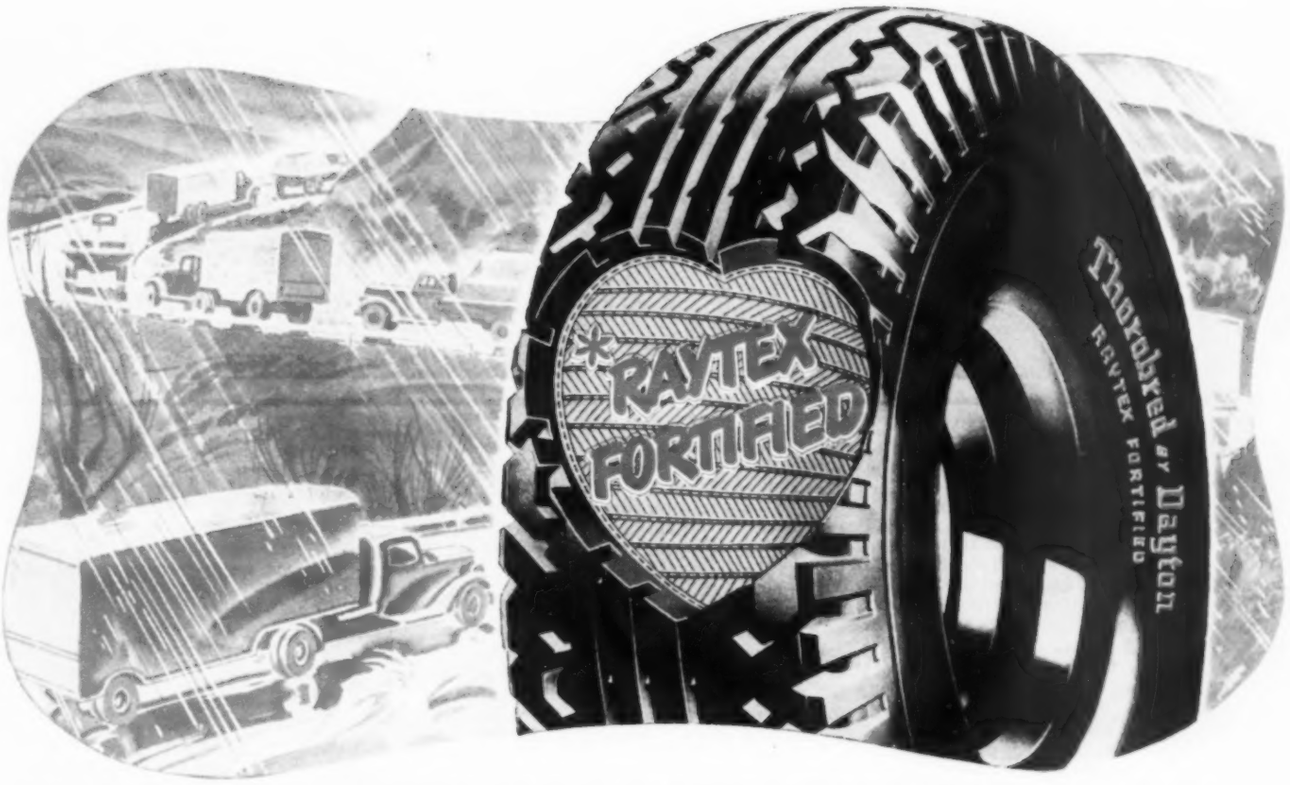
Tuttle and Hennicke Join United

D. R. TUTTLE and C. R. Hennicke have joined the United Manufacturing Company, Bedford, Ohio, as sales manager and chief engineer, respectively. . . . Both men were with the Eberhard Manufacturing Company of Cleveland, Ohio for many years in the same capacities, before becoming affiliated with United Manufacturing Company. . . . The United Company has been producing trailer axles for the past year and plans now are to expand their operations.

•

Ginter Now Aro Vice-President

C. W. GINTER, who has been associated with the Aro Equipment Corporation, Bryan, Ohio, since its organization sixteen years ago, has been appointed vice-president of the Corporation. . . . His duties will be to further the development of all pneumatic tools and lubrication equipment, the handling of all patents, the approval of all purchases of new machinery, and the construction and changes of all buildings.



DAYTON CHALLENGES YOUR TOUGHEST HAUL···

···YOUR OWN RECORDS will be the judge!

Here's any girl, in charge of a fleet owner's truck tire records. She knows nothing about tread design, carcass construction, or bead composition. However, she does know which manufacturer's tires are producing the greatest on-the-job mileage in relation to their cost. And this, in the final analysis, is all *you* want to know.

Tire cost-per-mile, *from your own records,* is the only real low-down on truck tire performance. Claims for truck tire superiority mean little, unless they show up in the cost-per-mile column as the most consistently trouble-free performers . . . at the lowest cost-per-mile.

In fleets where complete records on truck tire performance are kept, Thorobreds by Dayton, show the most consistent record of staying on the job, for the toughest hauls . . . at the lowest cost-per-mile.

Put a pair of the new Thorobreds by Dayton on the toughest haul on your schedule and we will rest our case . . . more miles for less dollars . . . *on your own cost records.* If you aren't keeping mileage records of your tire performance and need help to set them up, call your nearest Dealer in Tires by Dayton and he will be glad to help you, or write to Dayton Rubber Mfg. Company, Dayton 1, Ohio.

* The Fighting Heart of each Dayton Thorobred is now reinforced with NEW 2200 Denier Rayon Cords. Super-strong, heat-resisting *Raytex cords welded by a special Dayton process "float in rubber" giving additional mileage . . . at the lowest cost-per-mile.

* Dayton Processed Rayon Cord

Dayton Rubber

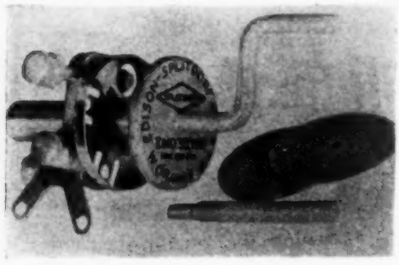
THE MARK OF TECHNICAL EXCELLENCE IN NATURAL AND SYNTHETIC RUBBER

New Contact Resurfacing Tool

A NEW mechanical tool for resurfacing all types of contact points and screws used in magnetos, distributors, and other electrical units, is now in production at Edison-Splitdorf Corporation, West Orange, N. J.

The tool consists of two major parts—a holding ring and a revolving resurfacing plate. Old points are rigidly held in their proper holes in the holding ring by a holding screw. The rotating resurfacing plate, equipped with a special abrasive disk, produces a clean, square point that insures good electrical contact.

Each tool comes equipped with two feeler-gauges, two extra abrasive disks, and an electric-drill adapter



that replaces the handle for power operation.

Small, simple, compact, this new tool should find a ready use in repair shops, service stations, garages, airports—wherever service is performed on automotive or other electrical units.

•

"Spray-Cleaning for Buses"

BUS fleet operators interested in improving their service to the public by keeping their buses in clean and sanitary condition—through use of efficient, time-saving and low-cost maintenance cleaning procedures—will want to read the article on "Spray Cleaning for Buses" appearing in the November-December issue of *Oakite News Service*.

This illustrated article describes how an inexpensive, easy-to-install spray system can be used to keep hand-cleaning operations at a minimum, do a good job in much less time than by "brush and hose" method, and at low cost.

Consisting of a rectangular frame of piping, slightly greater than the dimensions of the largest vehicle to be washed, the overhead spray installation described in the article would be especially advantageous to use where space is limited, since between washings the area could be used for repairs, for parking or for any other purposes. With this spray installation and using a recommended detergent material, the average bus can be completely and efficiently cleaned in about ten minutes, it is declared.

Free copies of the November-December issue of *Oakite News Service* containing this article, are obtainable by writing to Oakite Products, Inc., 52G Thames Street, New York 6, N. Y.

•

"Shin-Guards" for Tires

SHIN-GUARDS for mine shuttle car tires, which take a heavy beating far underground, is the latest conservation development of The Goodyear Tire & Rubber Company, Akron, Ohio.

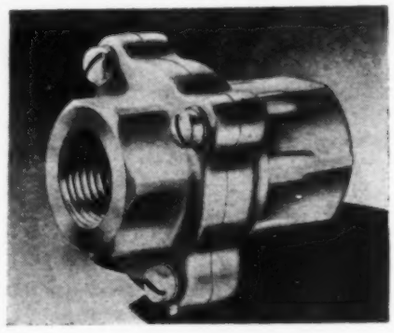
These tire shields are circular protectors of ⅜-inch steel, which may be applied easily and quickly, extending far enough up on the tire to protect the side-wall area, where cutting and snagging might otherwise occur.

Use of these shields, according to W. A. Kemmel, manager of Goodyear Truck Tire Sales, has solved the answer to many tire failure problems in the coal mines, where shuttle cars must move over sharp edges of fallen slate and rock, and against projecting pillars of coal. No change in tire pressure is required.

The shields clear the tire safely, giving sufficient room for normal flexing without chafing of the side-wall. Shields on shuttle cars are designed for Goodyear L-type rims, with which most cars of this type are said to be equipped. They fit in place in approximately the same position taken by the rim side-flange, and are held in place by lock-rings, which are furnished with the shields.

Emergency Check-Valve for Trailers

BENDIX Products Division, South Bend, Ind., offers this Model TC Emergency Check-Valve for vacuum



power-brake installations on trailers.

This valve provides emergency application of the trailer brakes in the event of accidental break-away of the trailer from the tractor. It is normally held open by a spring, and operates only when the line is suddenly opened, as in an accidental break-away.

When the lines are broken, this check-valve closes, thus retaining vacuum in the reserve tank on the trailer, while the control line, being fully open, admits full atmospheric pressure to the chamber.

Complete information on this product is given in Bendix's BK Technical Data Sheet No. 15A, which also covers their new fast-operating, large-capacity SCV Conversion Valve. . . . Copies are available, free, on request.

•

New Polaroid Automobile Visor

THE production schedule for the new Polaroid Day-Driving Visor has been doubled, following an enthusiastic response to the current national advertising campaign to introduce this new product, which eliminates sun-glare reflected from roads.

Planned for retail sale at $4.95, the visor is the first major new consumer product to be developed by Polaroid since the war. Consisting of a polarizing curved plastic film of good optical quality, mounted in a lightweight metal frame which attaches readily to the visor of most cars, the new Polaroid product has selective light-control properties which reveal the scene without the glare. Visor distribution was expected to start in the early part of 1946.

KEEP OIL FREE FROM ABRASIVES WITH

PUROLATOR

THE OIL FILTER

Originates the

MICRONIC OIL FILTER

The Greatest Development in the History of the Oil Filter Industry

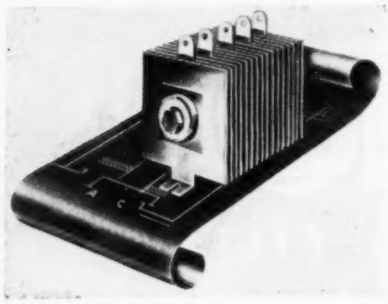
With the origination of the Purolator Micronic Oil Filter Element, Purolator demonstrates once again its unchallenged leadership in the oil filter industry. The origination of this sensational filter element was started by Purolator long before Pearl Harbor. When the Armed Forces demanded a filter element which would filter abrasives down to the size of a micron (.000039 of an inch), the Purolator Micronic Oil Filter Element was the first filter element submitted by the oil filter industry which could successfully meet the specifications.

NOW . . . this sensational Purolator Micronic Filter Element becomes a leading item in the Purolator Line . . . the greatest development in the history of the oil filter industry.

PUROLATOR PRODUCTS, INC.
Founder and Leader of the Oil Filter Industry
Newark 2, N. J.
In Canada: Purolator Products (Can.), Ltd., Windsor, Ont.

New Copper Sulphide Rectifier

THE Benwood-Linze Company, St. Louis, Mo., has announced the development of a dry disc metallic rectifier which does not require forced cooling.



This rectifier is rated at 50 amperes for 6-volt automotive battery taper-charging. Two rectifiers may be operated in parallel, from separate transformer secondaries, to provide 100-ampere maximum charging-rate, without a fan, it is declared.

Battery-chargers of this type (designed to charge 6-volt batteries) operate from the usual 110-volt AC power supply, to deliver the required rating of DC to the battery.

This new rectifier now makes possible the design of fast battery-chargers rated 50 amperes, without any moving parts, the manufacturer points out.

•

"Alemite Answers"—a New Book

MAN'S age-long struggle with friction, beginning with the discovery of prehistoric man, that it was easier to roll a log than to drag it, and concluding with lubrication recommendations for all types of modern machinery, is the subject of a book recently published by the Alemite Division of Stewart-Warner Corporation, Chicago.

Entitled "Alemite Answers," it is a graphic presentation, with illustrations of hydrocarbons cavorting in animated-movie style and cutaway views of bearings and other friction points, to demonstrate, in laymen's pictures and terms, the how, what, when, where and why of lubrication.

The book is for distribution at three dollars per copy through the Alemite distributor organization, to industry and the automotive, marine and aviation fields. In addition, copies will be made available to engineering and technical schools, designers, engineering societies and other individuals or groups concerned with machinery.

"Alemite believes," the foreword to the book states, "that the era has passed when rule-of thumb procedures governed lubrication practice. That today, lubrication is a science founded upon logical analysis, guided by research and tempered by experience. That the acceleration of this progress is dependent upon a continuous exchange of ideas, the lubricant manufacturers' scientific information for the lubricant users, experiences. That this book will contribute to this exchange by translating consumers' questions into manufacturers' answers."

The book, as well as its style of presentation, owes its origin and much of its contents to Alemite's experiences in preparing lubrication training material for the armed services during the war period, company executives said. Available material, highly technical in nature, had to be interpreted and imparted to non-technical audiences via training films and demonstrations, in minimum time, they explained. The types of illustrations employed successfully in this work thus predominate in this new history and exposition of lubrication, although technical accuracy and scientific foundation are not slighted or abused, it was asserted.

The book is divided into seven chapters, with self-explanatory headings. These are: "Explaining Petroleum and its Chemistry;" "Considering Refining and Testing of Fuels;" "Studying Refining and Testing of Lubricants;" "Clarifying Lubrication and Lubricants;" "Demonstrating Application Problems and Solutions;" "Relating the Story of Alemite," and, "Defining Purchasing and Selling."

•

Flexible Shaft Equipment

THE R. G. Haskins Company announces a complete line of automotive flexible shaft equipment, comprising four models of driving stands, plus a complete assortment of attachments and accessories for automotive use.

Two models (AH-5 and AD-5) are of the pedestal type, mounted on free-rolling casters. The model SRA-5 is portable also, but can be mounted on a wall bracket. The model D-5 is for use on the bench and is equipped with a heavy base that can be permanently attached, if desired.

All Haskins flexible shaft outfits are equipped with ½ h.p. ball bearing motors. Spindles are also full ball bearing type and are completely dust and grease sealed.

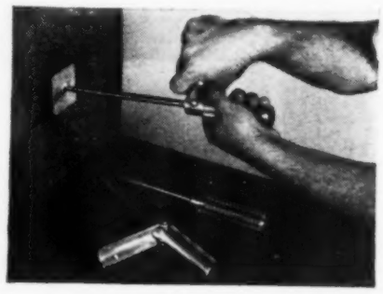
The line of attachments includes straight spindles, angle-heads, drill chucks, 4" and 6" wire brushes, cotton buffers, ruber pads, sanding discs, and an asortment of hand-cut rotary files, rasps, etc.

The makers recommend flexible shaft equipment for sanding, grinding, polishing, buffing, wire-brushing, filing, drilling, etc., as well as for general utility work in fleet maintenance and body or paint shops. . . . An interesting 6-page folder is available on request to R. G. Haskins Company, 615 S. California Ave., Chicago 12, Ill.

•

Triple-Purpose Screw-Driver

A HANDY new tool for auto mechanics, maintenance men, assembly-line workers, engineers, plumbers, carpenters, and others is called "Tuffy," a new triple-purpose screw-driver tool.



It features a "power-arm" arrangement that gives extra power which unlocks rusted screws that an ordinary screw-driver cannot budge, according to the makers. In reverse, it makes possible the last quarter-turn pressure needed to tighten screws and make them stay put. With the power-arm folded back into the handle, it becomes a standard type screw-driver.

Tuffy's aluminum power-arm is so constructed that when in use it affords a solid horizontal hand support that allows full hand and body pressure to prevent slipping or gashing of the screw head.

This tool has an aluminum handle; blade is drop-forged steel and is plated to ward off rust. . . . Tuffy is made in 5" by ¼", 6" x 5/16", 8" by ⅜" length blades. Should more information be desired, write to Swallow Airplane Co., Inc., Wichita, Kansas.

•

Battery Specification Booklet

A NEW 12-page booklet listing replacement battery specifications for trucks of all types and models, taxicabs, tractors, buses and other power units, has been prepared by the Auto-Lite Battery Corporation, it has been announced by W. E. Blank, Replacement Sales Manager.

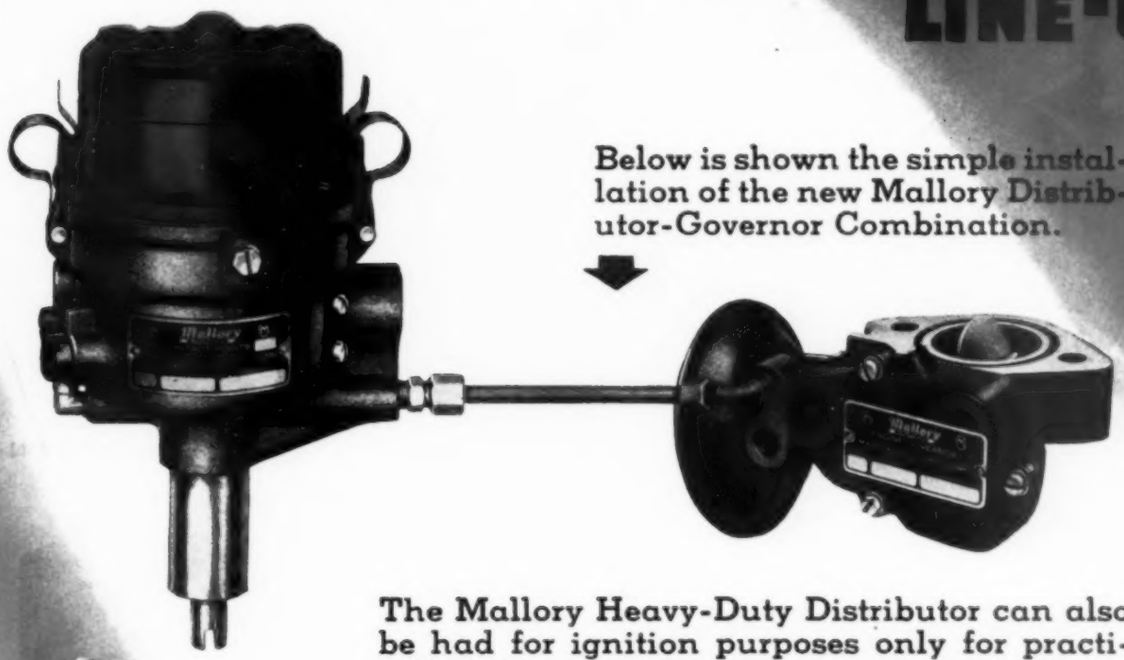
The booklet, which also lists specifications for passenger-cars and gives detailed information about specific Auto-Lite batteries, is available to fleet owners, battery distributors and dealers through the Sales Department of the Auto-Lite Battery Company, Toledo 1, Ohio.

THE NEW

Mallory

REGISTERED U.S. PATENT OFFICE

LINE-UP



Below is shown the simple installation of the new Mallory Distributor-Governor Combination.

The Mallory Heavy-Duty Distributor can also be had for ignition purposes only for practically all truck engines and is supplied with the proper ignition curve, ready for installation.

The Mallory Special Condenser is also of the rugged heavy-duty type and of higher capacity than the ordinary condenser.

Write for "BOOKLET A" which contains information on ignition and engine governing which the fleet owners and service man never have been able to obtain.

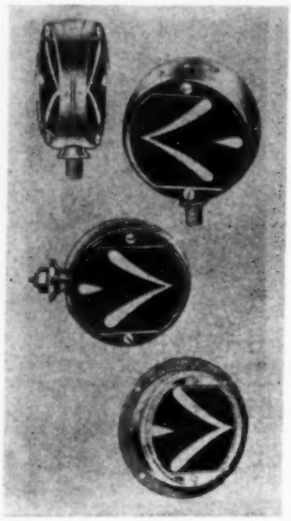
The Mallory Master Coil is supplied for both 6 and 12-volt systems. It is built ruggedly and of the heavy-duty type, especially for truck use.

MALLORY ELECTRIC CORPORATION

12416 CLOVERDALE DETROIT 4, MICHIGAN

Teleoptic Signals Improved

THE Teleoptic Company is now featuring four types of heavy-duty direction signals, illustrated here.



These are: Front and rear fender lights, the flush type light, and the cab-over-engine signal for side mounting.

Three types of control are now available—the finger-flip switch on the end of the gear-shift lever; the bracket switch mounted on the steering column; and the instrument panel switch, with or without pilot light.

Teletoptic signals are claimed to be of sturdy, shake-proof construction, with pedestals that screw on and diminish the chance of shear. Lenses are made of extra heavy ground glass of scientifically-determined color, to insure the greatest visibility at all times.

The company is also planning to introduce several new types of direction signals combining stop-and-turn signals with tail and parking lights; also a streamlined fender light for flashing directional signals. They are also making "Fog-King" and "Road-King" driving lights. . . . For more details address The Teleoptic Company, 1251 Mound Ave., Racine, Wis.

•

A-H Offers New Technical Manual

THE new *"Technical Manual"* prepared by Koppers Company, Inc., American Hammered Piston Ring Division, Baltimore, Md., has recently come off the press. This manual is designed to help repairmen service automobile motors efficiently and profitably and help them eliminate the causes of costly come-backs.

It has been pointed out that many factors contribute to excessive oil consumption and lack of efficiency in modern engines, and that the repairman who attempts to correct them all by merely installing a new set of piston rings, is asking for trouble.

The new manual incorporates recommended procedures and practices used in the overhaul of modern high-speed automotive engines, and covers in detail the many causes of excessive oil consumption, as well as the peculiarities and "bugs" to be looked for in individual engines; and tells how to lick these troubles.

The new American Hammered *"Technical Manual"* is offered at cost, through American Hammered jobbers.

•

Free Booklet on "Vulmaster"

THE Resistoflex Corporation, Belleville, New Jersey, announces a new 16-page illustrated catalog describing the Vulmaster, an automatic vulcanizing machine now being manufactured and distributed by Resistoflex, in addition to its line of products made of compar.

The catalog provides a complete description of the Vulmaster, with photographs of the machine in operation, as well as prices.

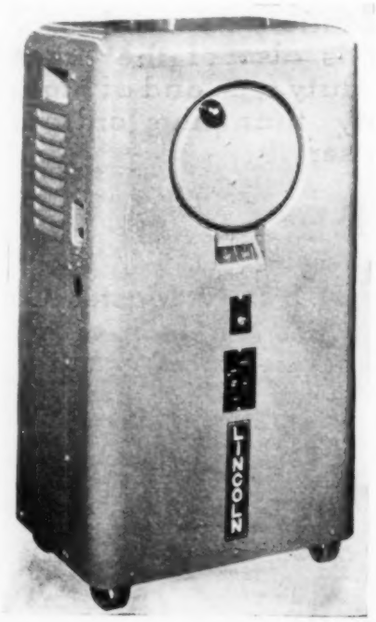
Operational economies are presented vividly, showing the small space required for the Vulmaster repair of rubber or synthetic rubber tires, tubes and valves, and how an inexperienced operator can turn out a professional job, because of the patented fuse arrangement which does the vulcanizing automatically.

•

Low-Priced Lincoln Welder

A NEW low-priced welder, called the "Fleet-Arc, Jr.," is announced by The Lincoln Electric Company, Cleveland, Ohio. It is said to be ideal for use on rural power lines, of 230-volt, single-phase capacity.

The new welder has a maximum input current of 35 amperes and can be used with the standard 3-KVA power transformer provided by the power company. Current range is from 20 amperes at 20 volts, to 180 amperes at 25 volts welding duty. This is said to give sufficient capacity for many jobs needed in the average welding shop. It will handle electrodes ranging from 1/16" to 5/32" diameter.



Current control is of the separate adjustable reactance type, varied by turning a hand wheel. Features include: Vibrationless current control with-self cleaning chain drive. No taps or plugs to develop loose connections. Heavy copper winding with spun glass insulation and mica coil separators. Arc-welded steel frame and housing.

The new welding outfit weighs 350 pounds and is readily portable. . . . Full information can be obtained by addressing Lincoln Electric Company, Cleveland 1, Ohio.

•

New Simplex Piston Rings

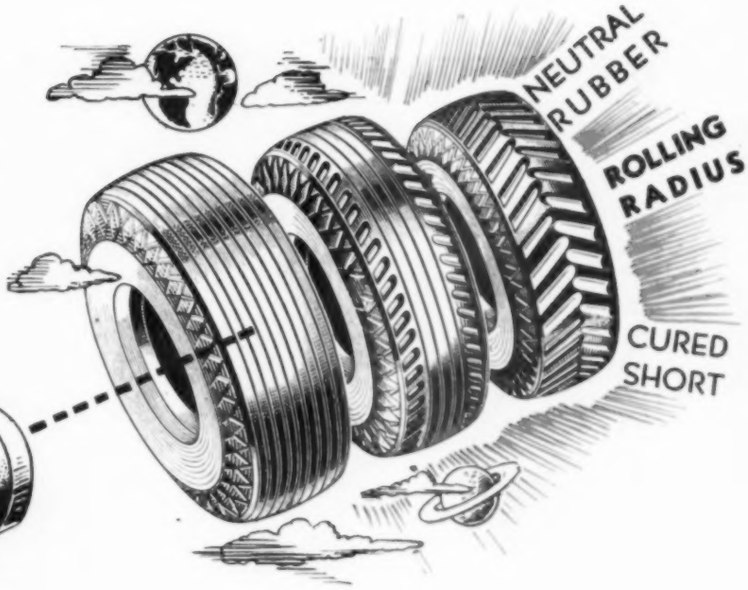
THE Simplex Products Corporation, Cleveland, Ohio, announces an addition to their line of piston rings—a number of chrome-plated rings in engineered sets. Two of the new types are illustrated with this description.

The chrome-plating not only provides an extremely hard rugged, wear-resisting surface that wipes the cylinder wall clean, it is claimed, but also provides lubrication and reduces friction and wear, due to the "wet metal" action.

One of their engineered combinations, for example, is called the *"Krome-Chek"* set, consisting of a specially-treated, non-scuffing plain ring for the top groove; two metal, multiple-edge compression rings in the second groove; and an all-steel unbreakable oil ring with extra draining capacity, for the third groove.

For complete information on *Krome-Chek* sets for various engine applications, which are said to be available for every make and model of engine, you may address the manufacturer, listed above.

Why is this *Discovery* so important



to TIRE USERS?

Because –

HAWKINSON TREADS

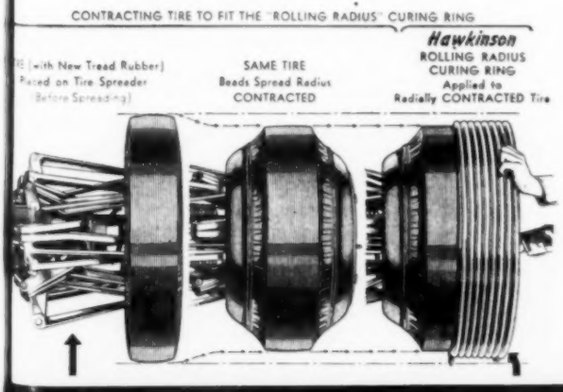
SINCE 1931

More than a Recap!

being applied by the patented
"LOADED ROLLING RADIUS" Method
cause the tire to run cooler · last longer · steer easier.

- The Hawkinson method permits you to attain the maximum possible mileage from your good tire carcasses.
- No part of the tire casing is subjected to buckling or crunching action during the treading operation.
- No heat is applied to the sidewalls or fabric of the tire during the treading operation.
- Hawkinson "Rolling Radius" treads give better mileage because they engage the road with neutral tread. Neutral tread does not "fight" the road.

NOTE METHOD OF CONTRACTING TIRE WHEN CURING TREAD.


CONTRACTING TIRE TO FIT THE "ROLLING RADIUS" CURING RING
TIRE (with New Tread Rubber) Mounted on Tire Spreader (Before Spreading)
SAME TIRE Beads Spread Radius CONTRACTED
Hawkinson ROLLING RADIUS CURING RING Applied to Radially CONTRACTED Tire

PATENTED METHOD PATENTED EQUIPMENT

Authorized **HAWKINSON TREAD** *Service*

In Principal Cities U. S. A., Canada and Foreign Countries

Minneapolis ★ PAUL E. HAWKINSON CO. ★ Minnesota

Mallory "Master" Coil

A NEW ignition coil for automotive engines is announced by the Mallory Electric Corporation, 12416 Cloverdale Ave., Detroit 4, Mich.

This new coil is available in 6-volt and 12-volt types and can be supplied with brackets for almost any type of mounting installation.

In addition to producing a more than adequate, intense, hot spark, the coil is so constructed as to eliminate "spark loss" or leakage out of the secondary terminal and wires, before the high tension current reaches the spark plugs.

Mallory engineers claim that in most ignition systems from 25 to 40 percent of the secondary current produced by the coil leaks out of the system before it gets to the plugs, causing hard starting and poor engine performance. The new Mallory "Master" Coil is specially engineered to prevent such spark loss, and it is claimed that it has sufficient extra energy to compensate for spark loss and still deliver a good hot spark at the plugs.

•

New Motor Oil by Alemite

ALEMITE Pennsylvania Motor Oil, heretofore marketed only as a straight-run mineral oil, will hereafter be prepared with anti-oxidation and anti-corrosive additives to conform to the new American Petroleum Institute and Society of Automotive Engineers definitions of crankcase oils, as a "premium motor oil," the Alemite Division of Stewart-Warner Corporation announced recently. The new oil, to be known as "Alemite Pennsylvania Motor Oil with P.A.," will be marketed at no advance in price over the former oil.

Alemite's new premium oil does not contain a detergent or dispersant agent. It contains only anti-oxidant and anti-corrosion compounds, or inhibitors. The former is used to produce less oxidation products such as sludge, varnish and oil-thickening. Reduction of these undesirable oxidation products results in less sticking of piston rings and sticky pistons. Consequently, improved power, lowered gas consumption and longer life for the oil results.

"Corrosion inhibitors," as the term implies, prevent bearing corrosion, resulting in longer bearing life. Pitting of bearing surfaces by highly-leaded gasolines is inhibited, or prevented, by such inhibitors.

Detergent or dispersant compounds are not added to the new Alemite Premium Oil, because the oil is not designed to serve as an engine purge or cleaner, Alemite officials said. The new oil is designed to "keep a clean engine clean" while providing proper lubrication by anti-oxidant and anti-corrosion action only.

Other motor oils in the Alemite line, remaining unchanged, are Alemite Triple-Safe Motor Oil, and Alemite Triple-Safe Heavy-Duty and Diesel Motor Oil.

•

Fire Extinguisher Instruction Cards

A NEW series of concise, comprehensive instruction cards, explaining the operation and maintenance of four of the most widely-used types of hand fire extinguishers, has been prepared by American-LaFrance-Foamite Corporation, of Elmira, N. Y.

They cover the Foam, Soda-Acid, Vaporizing Liquid, and Carbon Dioxide types. Clear illustrations accompany the text and show the various steps to be taken in handling, operating, and maintaining the extinguishers.

Because fires are not all alike, it has been necessary to produce different types of extinguishers to meet such differing conditions. The use of the wrong kind of fire extinguisher may be worse than none at all.

These cards, mounted adjacent to the extinguishers they illustrate, will provide a constant and accurate guide to plant employees. Upon request, a reasonable number of the cards will be available to industry in general, without obligation, of course.

•

Handy Mechanics' Reference Book

TO HELP instruct men in the use and care of metal-cutting tools; as well as to supply you with the reference material any mechanic must have handy at all times, Keystone Reamer & Tool Co. offers a free 65-page reference manual.

Such articles appear in the first 33-page section as follows: The use, care and reconditioning of reamers; a list of reaming pointers; pertinent data on screw-thread-cutting taps and dies; valve reseating hints; points on twist drills; facts on motor reconditioning; how to operate and read the micrometer; tap drill and thread sizes; table of decimal equivalents; speed of carbon steel drills; miscellaneous tables and useful information; plus 32 pages of data on the Keystone tool line.

This manual is being used, as have former editions, as a reference book in many vocational and manual training schools throughout the country, and the War Department, through its bulletins, recommends the book for use in its many training schools.

You may secure your copy without cost or obligation by writing to Keystone Reamer & Tool Company, Millersburg, Pa.

•

New Kelite Paint Remover

A NEW, fast, non-inflammable paint remover has been announced by Kelite Products, Inc., Los Angeles, Calif., makers of industrial cleaning compounds.

The new material is said to be safe on any metal or hard-wood surface and to provide speedy removal of all types of paint and enamel. It is packed in 5, 15 or 55-gallon containers.

The principal feature, according to the makers, is its speed. As many as 8 coats of paint can be penetrated, loosened and removed in one step, taking no longer than 30 minutes. In unusual cases, 22 coats were removed in three such steps. Complete removal of one or two coats can be accomplished in 10 minutes.

Removal after penetration is easy, in that the paint or enamel can be sheeted off by a pressure rinse. Full particulars will be sent on request to Kelite Products, Inc., 909 E. 60th St., Los Angeles 1, Calif.

•

New Expansion Reamer

LEMPCO Products, Inc., Bedford, Ohio, announces their new design Dual-Spiral Expansion Reamer, illustrated here.

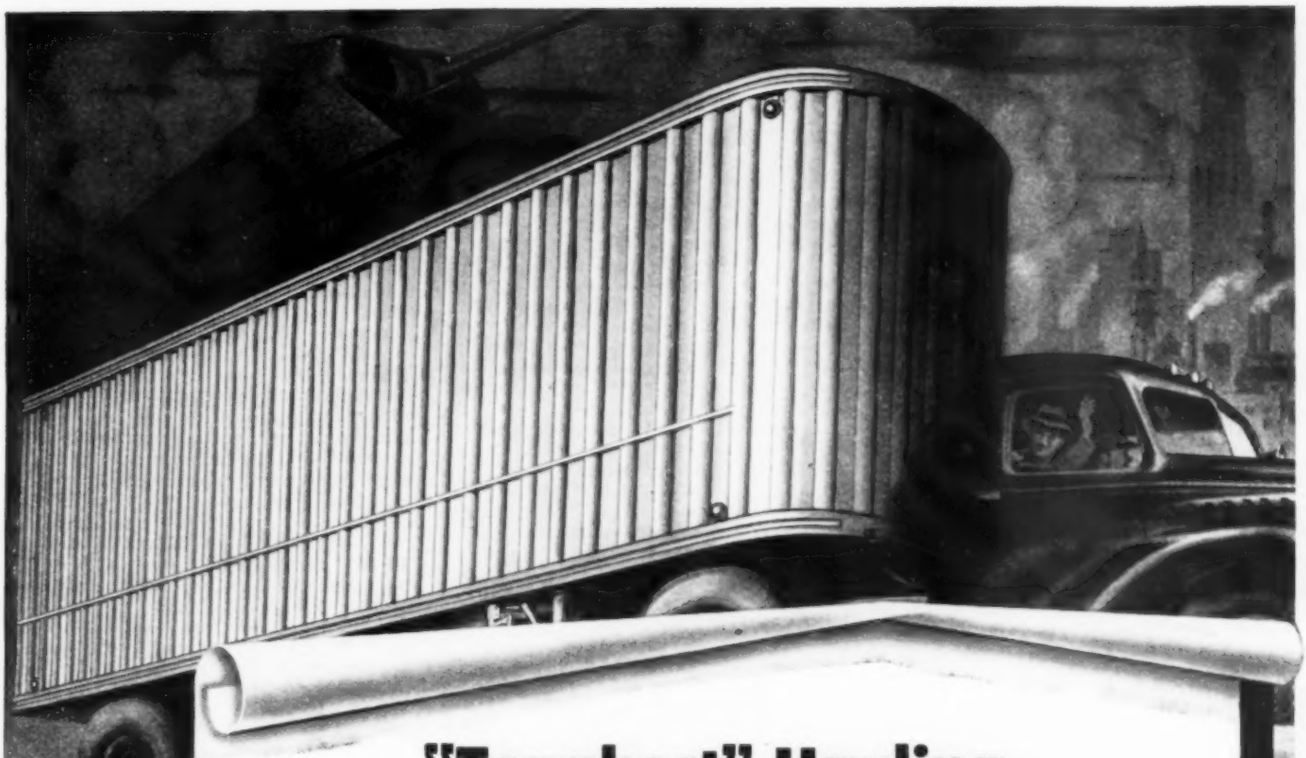
The principal change in the new design is a solid, one-piece body all the way from the driving end to the lower lock-nut.

This one-piece construction is said to considerably reduce the number of component parts.

In addition, because of its increased rigidity, the cutting blades are claimed to spiral even more concentrically than previously.

Other claims are that the amount of run-out is held to an absolute minimum, thus insuring accuracy to extremely close tolerances.

Complete information and catalog sheet will be sent by the manufacturer, mentioned above, without obligation, on request.



"Toughest" Hauling

now MORE than matched by new corrugated van with

3 MAJOR STRUCTURAL IMPROVEMENTS

The *corrugated* Trailmobile is fast becoming *standard* for terminal and other *"trailer-killing"* operations!

Its sides, wherein rugged corrugations form a solid wall of sturdy posts, are famed for their outstanding body-strength. Now, Trailmobile uses corrugations to make a body 2 to 3 times stronger, throughout, than that of *any* other trailer-van!

A "folding back" of its sides makes them *doubly thick* all along both top and bottom, therefore *4 times stronger!* And *identical* rub-rails at both top and bottom are *double* ribbed, creating *double* the strength to resist impacts and protect the corrugations.

Its under-structure is that of the famed Smooth-Panel Trailmobile —with "distributing beams" that "spread" load-stresses, preventing stress-concentration. Its under-carriage is Trailmobile's standard—long accepted by the industry as the "easiest pulling"—nevertheless now still *further* refined and improved.

So for hauling considered "too tough" for *any* ordinary trailer, thousands insist on *only* this new corrugated model-CP Trailmobile—with its surprisingly low upkeep!

For instance, to replace damaged panels, you simply unbuckle the Lock-strip, "torch out" the damaged piece, weld in a new one, replace the Lock-strip. And, its plywood, when damaged, simply "snaps" into slots and is then "locked" to stop vibration by a special plywood Belt-rail!

See this trailer at your near-by Trailmobile Branch. You'll like it. Or, write us. ACCEPT without obligation, complete literature FREE.

THE TRAILMOBILE COMPANY
Cincinnati 9, Ohio

TRAILMOBILE

Protecting its 105 Year Reputation
—71 "Homefolks" Service Centers

COPYRIGHT 1946. THE TRAILMOBILE COMPANY

K & W Test Heads

TO supplement its line of K & W cylinder block repair equipment, Kerkling & Company, Bloomington, Ill., has recently announced a line of

aluminum test heads to fit a majority of truck and automobile engines.

These heads are to be used in conjunction with the K & W Circulator, which circulates a special metallic sealing compound at the proper temperature and pressure, to seal minor cracks in blocks and heads.

The heads are made of aluminum alloy and cover only the areas over the cooling ports and stud holes in the block, leaving the cylinders, valve-ports and surrounding areas open for easy inspection. Thus, internal cracks are easily found and repair results can be observed before re-assembling the engine.

•

Remington-Rand Redi-Files

A NEWLY-DEVELOPED type of hanging file folder, called "Redi-File," is announced by Remington-Rand. Redi-File, tailored to fit any size desk drawer, gives executives finger-tip accessibility of working papers. Easy-to-read angle tabs on hanging folders make papers easy to locate. The arrangement of the folders requires no follower-block to hold papers upright. Folders cannot sag or bind—whether they be few or many, full or empty, it is claimed.

Redi-File fits any standard filing drawer and requires no revision of present filing systems. Variadex or other filing methods—alphabetic, subject, numeric, or Soundex—can be used with Redi-Files, thereby conserving the advantages of the filing method used, while adding the mechanical advantages of Redi-File folder suspension.

These mechanical advantages include: uniform height of tabs in their pre-selected positions; avoidance of sagging and slumping of folders; ease of removal and replacement of folders; wide V-opening for scanning folders and filed papers for quick reference; and rapid location of folders and individual documents.

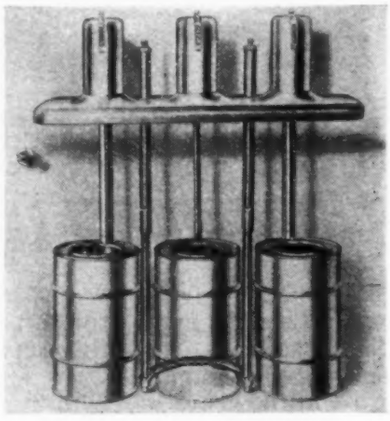
Constructed of durable Remcraft stock with metal hangers and tabs. Tabs are available in a variety of sizes. Prices, descriptions, and specifications can be obtained from any Systems Division Branch Office or by writing to Systems and Methods Research Department, Remington Rand Inc., 315 Fourth Avenue, New York 10, N. Y.

New 3-Pump Elevator Unit

THE Gray Company, Inc., Minneapolis 13, Minnesota, has announced the addition of a new 3-pump supply unit, with built-in pneumatic lift, to its line of lubricating and maintenance equipment.

Modeled either for "out-of-sight" installation or for use on the service floor to display lithographed oil company drums, this 3-pump elevator unit completely eliminates manpower in the job of raising pumps and drum cover, when changing lubricant drums according to the maker.

Accommodating three 100-lb. original containers, the new supply pump is available in any 3-pump combinations of 50-1, 36-1, 6-1 and 2½-1 pressure ratios. Designed to meet every supply installation problem in which chassis lubes and gear lubes are dispensed through service outlets, this battery of supply pumps is complete with a pneumatic lift and all connec-



tions necessary for fast installation to supply lines.

Push-button control is substituted for "elbow-grease," to make the job of drum-changing easier and more efficient. When one of the original lubricant containers in the new 3-pump unit becomes empty, all you have to do is pull the lift-control button to make the pumps and drum cover ascend vertically, as shown in the picture. The upward movement is automatically stopped by the lifting mechanism at a point which allows ample clearance between the riser tubes and the lubricant drums.

With the pumps held motionless in mid-air, it is a simple matter to replace lubricant containers. The unit is held steady at all times by a semi-circular cast iron base. A similar pneumatic elevator unit, without pumps, is also available.

•

Book On Bearing Engineering

A 270-page technical book entitled "*Ball and Roller Bearing Engineering*" has been published by SKF to serve as a fundamental text on all phases of bearing applications to industry.

The book, a bound volume containing some 900 drawings and tables begins with a technical description of common bearing types, and continues through nine chapters of fundamental engineering studies. Both radial and thrust bearings are discussed comprehensively in Chapter 1, together with data on dimensional proportions, running accuracy and tolerances of each type.

"Forces and Motions in Bearings," the second chapter, is devoted to theory and calculations on such subjects as the nature of rolling resistance, friction torque, friction coefficients, stresses and deformations, load distribution, motion and inertia. Other chapters deal with studies in the carrying capacity of ball and roller bearings, bearing selection, design of bearing applications, mounting and dismounting, lubrication and maintenance and bearing failures. The final chapter is made up of tables, conversion values and a description of symbols and abbreviations.

First copies of the book have been sent by SKF to the heads of leading corporations, technical schools and colleges and libaries in principal U. S. cities. Later editions will be sold at cost by the Company for students and others interested in bearing studies.

•

Manley 3-Ton Wrecking Crane

THE Manley Manufacturing Division of American Chain & Cable Company, York, Pa., announces this new 3-ton wrecking crane.

It is a new job, utilizing a mechanism similar to one used as a special bomb hoist developed for the Navy. It can be mounted on any open truck; no special body is required. It can be hooked up for action by making two connections, according to the makers, and will handle loads up to 3-tons. In addition, it folds out of the way and "converts" the truck for other deliveries.

The winch is hand-operated by means of a crank with 100-to-1 reduction. It is self-lubricating throughout, operating on ball bear-

ings and pulling from any angle. Loads are automatically held with no pawls or ratchets; just stop cranking and the load is held in that position.

The weight is 320 pounds and all gears, cable and mechanism is enclosed against grit, dirt and bad weather. Gears are drop-forged, heat-treated alloy steel, running on oil-less bearings. Tru-Lay pre-formed cable is used, totally enclosed in boom and housing.

WOLF'S HEAD HEAVY DUTY OIL

has the 5 Big Factors of Superior Quality

1. Strong, tough film 2. Detergency 3. Dispersancy
4. Resistance to oxidation and high engine temperatures
5. Non-corrosive to bearings

It took the Big 5 to be the right answer to Hitler.

And it takes 5 Big factors for efficient heavy duty lubrication.

All heavy duty oils, to some extent, have one or more of these factors—but Wolf's Head Heavy Duty Oil has—*all five*.

Furthermore, Wolf's Head has them blended in the right combination to give Wolf's Head Heavy Duty Oil the quality to stand up under overload conditions—cut engine wear—reduce operating costs.

Want proof of what Wolf's Head Heavy Duty Oil can do for a truck or bus fleet operator? Write for a free copy of the Heavy Duty Folder. Wolf's Head Oil Refining Co., Inc., Oil City, Pa., or New York 10, N. Y.

LABORATORY CONTROL SERVICE

Gives fleet operators specific recommendations for their units, based on analysis of crankcase oil. Helps to establish correct drain periods, conserve engine life, reduce lay-ups—frequently reveals unsuspected engine troubles. Free and without obligations.

WOLF'S HEAD

MOTOR OIL AND LUBES

100% Pennsylvania P.G.C.O.A. Permit No. 6

In the Automotive World

Plan for Better-Informed Public

COMMERCIAL motor vehicle operators in the eleven western States of Arizona, California, Colorado, Idaho, Montana, New Mexico, Nevada, Oregon, Utah, Washington and Wyoming, are organizing a program designed to give the public a better understanding of the services of highway transportation to that area. . . . Decision to launch such a public information campaign was made at a recent meeting of representatives from these States at Reno, Nevada.

•

South Dakota Group Boosts Highway

AN organization tentatively named the "Chicago-Black Hills Highway Association" and dedicated to development of a hard-surfaced highway across southern South Dakota from Sioux City to Hot Springs, recently was formed at Winner, South Dakota.

•

Wisconsin Acquiring Rights-Of-Way

BECAUSE many new main highways that will be built in the future will be wider and straighter, the Wisconsin Highway Commission is busily engaged in acquiring thousands of acres of rights-of-way over the State. . . . Land acquisition for the wider roads with broad shoulders, is currently the principal activity of the Commission. . . . Actual road building has not yet begun, and probably will not be begun for many months, because of material shortages and uncommonly high construction costs, according to reports.

•

Gasoline Grade Labeling Ends in N. C.

NORTH Carolina State Gasoline and Oil Inspection Board regulations requiring grade labeling were abolished April 1, and new rules will raise the minimum gasoline standards. . . . After that date gasoline pumps do not have to display grade labels, but must have conspicuously attached the brand name of the gasoline sold through the pump.

•

Federal Use Stamp Still Needed

ALTHOUGH President Truman has signed a bill repealing the $5 Federal automobile use tax effective June 30, it is still necessary to display the stamp until that date. . . . Stamps for newly-acquired vehicles can be purchased on a pro-rata basis for the months remaining between the time of acquisition and the expiration date of that levy.

Chicago Stores Resume Deliveries

IN full and half-page newspaper advertisements, Marshall Field & Co., and Carson Pirie Scott & Co., Chicago, recently announced resumption of pre-war daily delivery service to customers within a 35-mile radius. The ads ask customers to continue to carry small packages, but stress that the stores have resumed a "traditional" service. . . . Next-day service, free delivery by parcel post to those not on a regular route, no size or weight restrictions, pick-up service, furniture delivery and special packing are among the services Fields offers.

•

English Highway Design Terminology

THE English refer to their equivalent of our traffic circles as "roundabouts." They also call a grade separation a "flyover" and a "verge" corresponds to an American grassed road shoulder. . . . English traffic is "platooned" by breaking up the stream of traffic using a street or highway by means of traffic signals. . . . An English road is "splayed" when an extra lane is added at an intersection, to increase its traffic capacity.

•

80-Foot Bridge Moves by Highway

CENSORSHIP has been lifted on a trailer-launched, 80-foot scissors bridge, disclosing that it can be installed for heavy traffic by six men in only 15 minutes. . . . The mobile span provides a rapid means of bridging small streams for vehicles and tanks weighing up to 35 tons. . . . It is a 13-ton aluminum plate-girder assembly hinged in the center to fold in half. . . . The bridge is transported on a single-axle semi-trailer, 51 feet long and 9 feet 4 inches wide.

THE 375,000,000th pneumatic tire in 44 years of Goodyear production is shown with R. S. Wilson (left) vice-president in charge of sales, and P. W. Litchfield (right) board chairman. . . . It's a 6.00-16.

December Automobile Excise Taxes

FEDERAL automotive excise taxes collected during December, 1945, compared to November, 1944, were as follows: Automobile trucks, 1945—$1,871,464, 1944—$1,972,120; Automobiles and motorcycles, 1945—$317,601; 1944—$261,794; Automobile parts and accessories, 1945—$4,996,624, 1944—$4,430,542; Tires and tubes (including floor tax), 1945—$10,032,813, 1944—$6,402,797; Lubricating oils, 1945—4,669,026, 1944—$8,497,387; Gasoline, 1945—$28,770,171, 1944—$39,754,163; Use of motor vehicles, 1945—$177,-268, 1944—$315,393.

•

Russia Will Manufacture Automobiles

THE latest industrial news from the U.S.S.R. is that they are planning to develop their automotive industry, with the expectation of an annual output of over 250,000 vehicles by the year 1950. . . . It is believed that their cars will be very much like the models produced in the United States. . . . Their newest passenger automobile is named the "Victory" and has four cylinders.

•

Air Forces Turning Out Mechanics

HIGHLY skilled employes for virtually every phase of motor freight transportation are available from among the thousands of Army Air Force dischargees who soon will be seeking jobs, it has been announced by the Personal Affairs Division Headquarters of the Air Forces Personnel Distribution Command.

•

Incas Built Roads Like the Romans

THE Inca Indians built roads in Peru comparable to those of the Roman Empire. . . . The road from Quito to Cuzco was between 1,500 and 2,000 miles long, and 20 feet wide. . . . It was paved with stones 10 ft. square, and in some instances the stones were covered with bitumen. . . . On either side were running streams and rows of trees. . . . The roads were constructed over sierras covered with snow, galleries were cut through rock and rivers were crossed by suspension bridges.

•

It's Smart to be Afraid in the Dark

THREE to one is the ratio of pedestrians who are killed during the night, over day driving. . . Strangely enough, fewer cars are on the road at night, yet within two hours after sundown is the period during which most traffic deaths take place. . . . It is estimated that the amount of light reflected back to the driver's eyes from dark clothing is not over 5 per cent of the full headlight beam.

•

LST's For Automobile Ferries

PUBLIC use of Landing-Ship-Tanks for use as auto ferries when available for civilian use, has recently been suggested. . . . It is estimated that these ships can carry at least one hundred automobiles per trip.

HE SAYS—"AMEN"

Owners, Traffic Men, Drivers—all praise Kellys!

The new Kelly—like all Kellys—proves its toughness and dependability on the books *and on the road!* It's the trucker's tire!

The reason? The newest in tire-making methods, materials and machines is combined with Kelly's 52 years of tire craftsmanship—extra skill, extra care through every step of the manufacturing process!

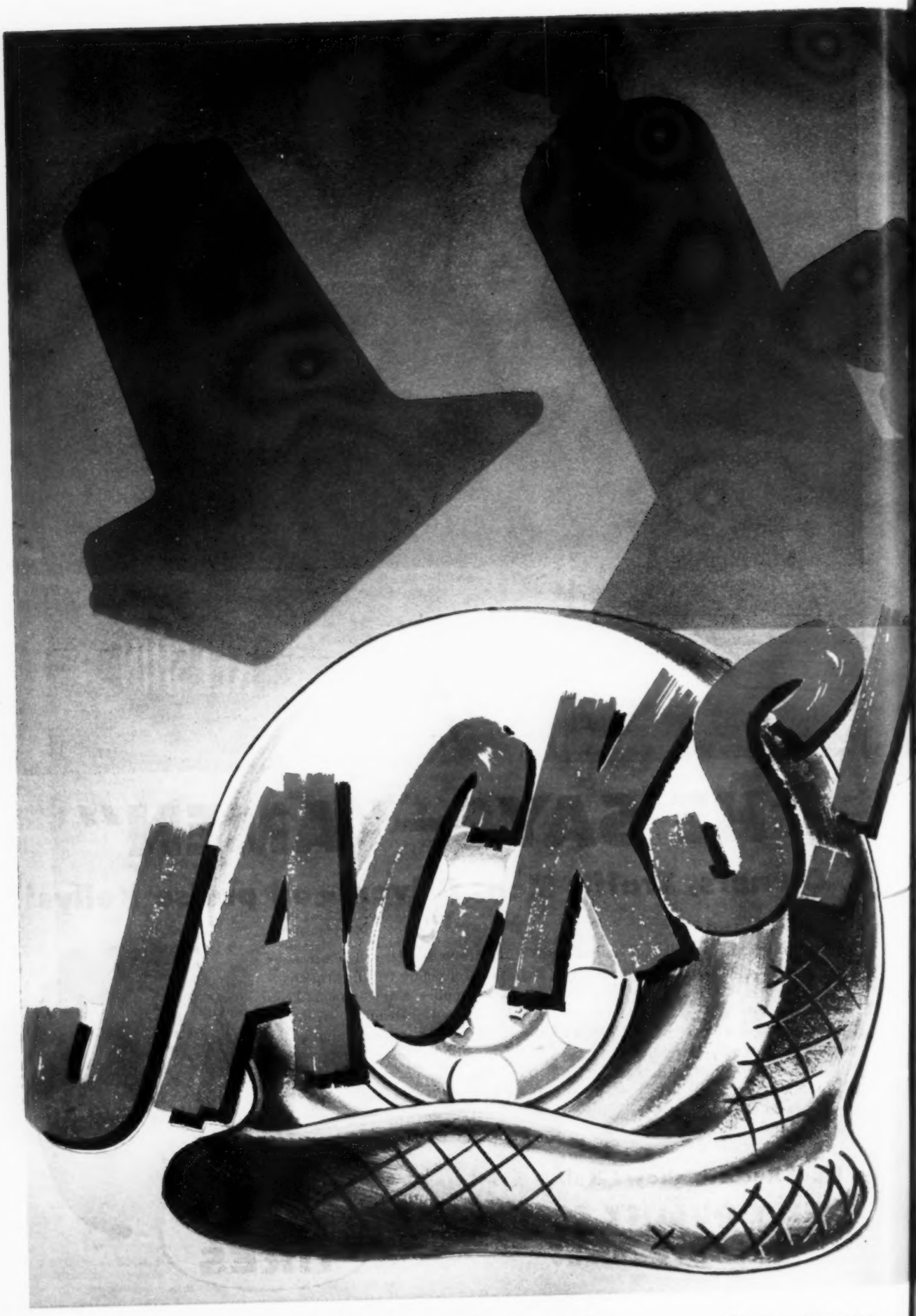
The new Kelly offers stronger rayon cord, tougher tread, extra cushion between plies, a new shape to keep rubber relaxed instead of stretched but it also has *Kelly quality* that keeps it rolling long after other tires are worn out. Try Kellys! Test them against others if you like.

THE KELLY-SPRINGFIELD TIRE CO.
Cumberland, Maryland

Fleet Records show "Kellys are Tough."

KELLY QUALITY COSTS LESS PER MILE!

KELLY *Springfield* **TIRES**


JACKS!

...the Kind you've been cussing for...

will soon be on their way to you . . .

and WILL the men who have to use them be happy with the new post-war Auscos! There's a specially designed Ausco for every kind of truck, bus, tractor, trailer lifting job . . . fully patented Hydraulic and Mechanical jacks so efficient, so easy to use, they sure take the gloom out of the old *get out and get under!*

AUTO SPECIALTIES MFG. CO., ST. JOSEPH, MICHIGAN, U. S. A. WINDSOR, ONT., CANADA.

ARMY NAVY

Watch AUSCO*

for the LATEST in Mechanical and Hydraulic Jacks
All fully covered by patents

* Trademark Registered U. S. Patent Office

1671

Why do the Nation's Biggest Truck Belt Users Say:—

"This Belt Gives 50% to 80% LONGER WEAR"?

Note Especially

The Patented
CONCAVE SIDE
Like all Gates Belts, the Gates Truck Belt is built with the famous, life-prolonging Concave Side—a Gates Patent.

Multiple-Ply Cover
Much Longer Wearing Than On Passenger Car Belts

30% Stronger Cords
Than Used in Passenger Car Belts

***Special* Heavy-Duty Compound**

MAKE SURE The belt *YOU* get has this (T) on the belt container.

Look for this letter "T" on the label of every belt you buy for Truck or Bus service. "T" means that the belt has been *specially engineered* for TRUCKS and BUSES. You can be sure of getting the belt designed for this more demanding service *only* by seeing to it that you are delivered belts which bear this letter "T."

*REG. U. S. PAT. OFFICE

Read what the Biggest *TRUCK BELT USERS* Say:

80% LONGER WEAR

CHICAGO, Ill.
"We are getting 80% longer wear than any other belt ever gave us."
All American Bus Lines.

80% LONGER LIFE

OMAHA, Nebr.
"Our records show 80% longer life for Gates Truck Belts."
Watson Bros. Trans. Co.

USE ½ AS MANY BELTS

NEWARK, N. J.
"Since adopting Gates Truck Belts we are using only half as many belts as before."
Bloomingdale Dairy Co., Inc.

BIG CUT IN COSTS

NEW ORLEANS, La.
". . . plays an important part in keeping our maintenance costs down."
Yellow Cab Co.

75% MORE SERVICE

SAN ANGELO, Tex.
"We're getting 75% more service than from any other belt we ever used."
Beard Machine Shop.

70% INCREASED LIFE

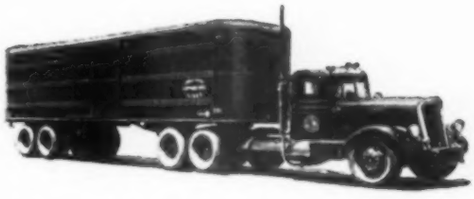
LEXINGTON, Ky.
"We have increased belt life about 70% with your Truck belts."
Lexington Railway System.

Because it is the *ONE* Belt *Specially Engineered* For TRUCKS and BUSES!

Are YOU Still Using PASSENGER CAR BELTS on YOUR Trucks or Buses?

You would certainly never even think of using passenger car TIRES on your trucks or buses. Then why use passenger car BELTS?

You realize, the moment you think of it, that trucks and buses put a heavier load on belts just exactly as they do on tires.



Isn't it natural, then, that a passenger car belt on a truck can not possibly give you anything like the long, trouble-free service given by the belt that is specially engineered for trucks and buses--the Gates Truck Belt?

Look at the cross-section drawing of the Gates Truck Belt on the preceding page. Note the special cord section, the 30% stronger cords, the stronger, tougher, multiple-ply cover of more than *double* durability. Is it any wonder the biggest users of truck belts in the U. S. have found that this Gates Truck Belt gives them 50% to 80% longer wear?

Even more important--note in the statements of these experienced and practical operators, how much valuable *operating time* they are *saving* through fewer road failures and fewer delays for servicing.

Surely it is just as important to you as to them to keep *your* trucks and buses operating most efficiently and economically. If this is true, the wisest move you can make is to call your jobber right now and tell him to send you a trial order of Gates TRUCK Belts.

Gates Jobbers Now Have Stocks to Serve You

THE GATES RUBBER COMPANY
DENVER, U. S. A.
World's Largest Makers of V-Belts

Gates

THE MARK OF SPECIALIZED RESEARCH

T 464

MANY MORE MILES

GENEVA, N. Y.
". . . many more miles of service than even pre-war belts."
Market Basket Corp.

WEARS 75% LONGER

NASHVILLE, Tenn.
". . . gives about 75% longer wear than any other belt we ever used."
Wilson Truck Co., Inc.

CUTS SERVICE DELAYS

OAKLAND, Calif.
"We are getting fully 75% longer wear with corresponding reduction in servicing time and belt adjustment delays."
Carnation Milk Co.

50% LONGER SERVICE

DES MOINES, Ia.
". . . is giving about 50% longer service over even pre-war belts."
Iowa Road Building Co.

50% TO 60% MORE SERVICE

JARREL, Tex.
". . . giving 50% to 60% more service — far the best we've used."
Jarrel Motor Co.

80% TO 100% BETTER

KANSAS CITY, Mo.
"Gates Truck Belts are doing an 80% to 100% better job for us."
Adams Transfer and Storage.

WHAT YOU SHOULD KNOW ABOUT
MAGNUS 755

For Carburetors, Fuel Pumps and All Parts With Carbonized Oil Deposits

This unique new cleaner offers such outstanding improvements in cleaning speed, quality of results and elimination of hand work, that every fleet and bus operator should investigate its possibilities in his service shop.

ORIGIN—Magnus 755 was originally developed to enable the Army Air Forces to remove carbonized oil deposits with minimum hand work from the engines of our fighting planes when they were returned for reconditioning.

PROPERTIES—It is an emulsion-solvent cleaner, used in cold or warm solutions. It penetrates stubborn dirt deposits rapidly, particularly those caused by carbonized oil. It loosens the bond with the metal and removes deposits without hand brushing or scraping.

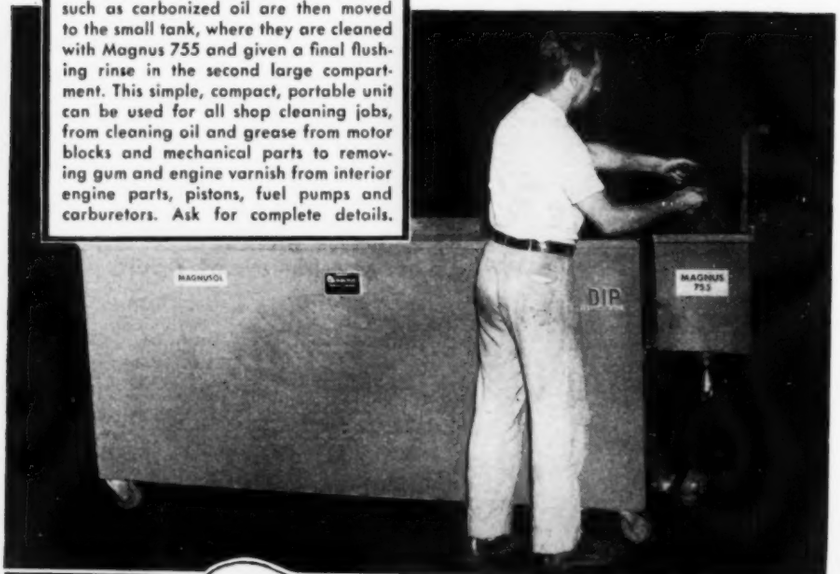
ADVANTAGES—Magnus 755 is completely safe for *all* metals. It cleans faster and better and removes many deposits which resist all ordinary cleaners. Magnus cleaning solutions have unusually long service life, so that cleaning costs are low.

USES—Magnus 755, used cold, is already regarded by its users as the most effective cleaner now available for carburetors, fuel pumps and similar parts. It does a fast, complete job of removing carbonized oil deposits from pistons and other motor parts. Some shops are using it to clean engine blocks, in solutions heated to 160°F.

Highly satisfactory in soak tanks, Magnus 755 works even faster and better in the Magnus Aja-Dip Cleaning Machine.

THE MAGNUS KOL-DIP CLEANING SYSTEM

Here is a simple, effective cleaning system of wide practical value in any service shop. It consists of two large compartments of equal capacity and a third small compartment. Greasy, oily parts are given a short dip in Magnusol in the first large compartment, then flushed clean in the second. Parts with stubborn deposits such as carbonized oil are then moved to the small tank, where they are cleaned with Magnus 755 and given a final flushing rinse in the second large compartment. This simple, compact, portable unit can be used for all shop cleaning jobs, from cleaning oil and grease from motor blocks and mechanical parts to removing gum and engine varnish from interior engine parts, pistons, fuel pumps and carburetors. Ask for complete details.



1921-1946 TWENTY-FIVE YEARS OF SERVICE TO INDUSTRY

MAGNUS CHEMICAL COMPANY
36 SOUTH AVENUE, GARWOOD, N. J.

MAGNUS Fleet Cleaners & Machines

Diesel Fleet

(*Continued from page* 67)

are instructed to check them enroute. Oil is changed each third trip or at about 1,800 miles. The sock in the oil filter is changed each sixth trip, or about 3,600 miles. At times samples are sent out from each tractor to be tested at a laboratory for any foreign matter and general condition of oil. Average oil consumption is one gallon per round trip, using 30 SAE in summer and 20 SAE in winter. We use a standard brand of lube oil with refinery-added additive.

Engine fuel consumption is 110 gallons of eight-cent fuel (including tax) per round-trip per unit. Having had experience with these Diesels since 1937, under the toughest possible conditions, and delivering miles at the low cost of 1.33 per mile, we can conclude that this type of power is extremely dependable and economical for a really tough motor transport operation such as ours.

●

Data on Oil Additives

(*Continued from page* 88)

compounds, such as tricresyl phosphate, are very effective in reducing welding. Sulfur compounds of the sulfurized lard oil type are even more effective, as are chlorinated materials also. In addition to compounds containing phosphorus, sulfur, and chlorine, moreover, lead soaps, such as lead naphthenate, are used to impart E.P. properties to lubricants.

POUR-POINT DEPRESSANTS: The pour-point of an oil is the lowest temperature at which the oil flows under conditions established by the A.S.T.M. procedure. Some lubricating oils contain wax, the presence of which raises the pour-point of the oil. Although the problem of pour has always been more or less in the minds of oil refiners and equipment users, the need for oils which would flow freely at extremely low temperatures was emphasized during World War II by the Army Ordnance, inasmuch as some army equipment had to be used in very cold climates.

Wax is removable by various methods, but in order to avoid the excessive costs involved where drastic dewaxing operations are needed, and at the same time to retain this high viscosity-index material, pour-point depressants have been developed which reduce the pour-point of wax-containing lubricants.

Examples are given below to indicate how such additives, which are usually very high molecular weight condensation products, effectively reduce the pour-point of an oil:

Composition	*Pour Point, °F.*
SAE 30 Motor Oil "X"	+30
SAE 30 Motor Oil "X" plus 1.0% Pour Depressant "A"	−10
SAE 30 Motor Oil "Y"	+20
SAE 30 Motor Oil "Y" plus 0.16% Pour Depressant "B"	−15

Although a number of theories have been advanced to explain how pour

FOUR-WHEEL-DRIVE

A "Plus" that Pays.. .. in Many Ways!

Low cost per ton mile

More hundreds of thousands of miles of productive hauling make FWD's cost-per-ton-mile low. Even with 500,000 miles or more on their FWD speedometers, surprisingly low costs for maintenance and repairs are reported by FWD owners.

The simplicity of the basic FWD four-wheel-drive principle, distributing balanced power through a center differential to two driving axles and all four wheels, is a "plus" value that helps make FWDs profitable in Motor Transport.

See the nearest FWD Distributor, or write for further facts.

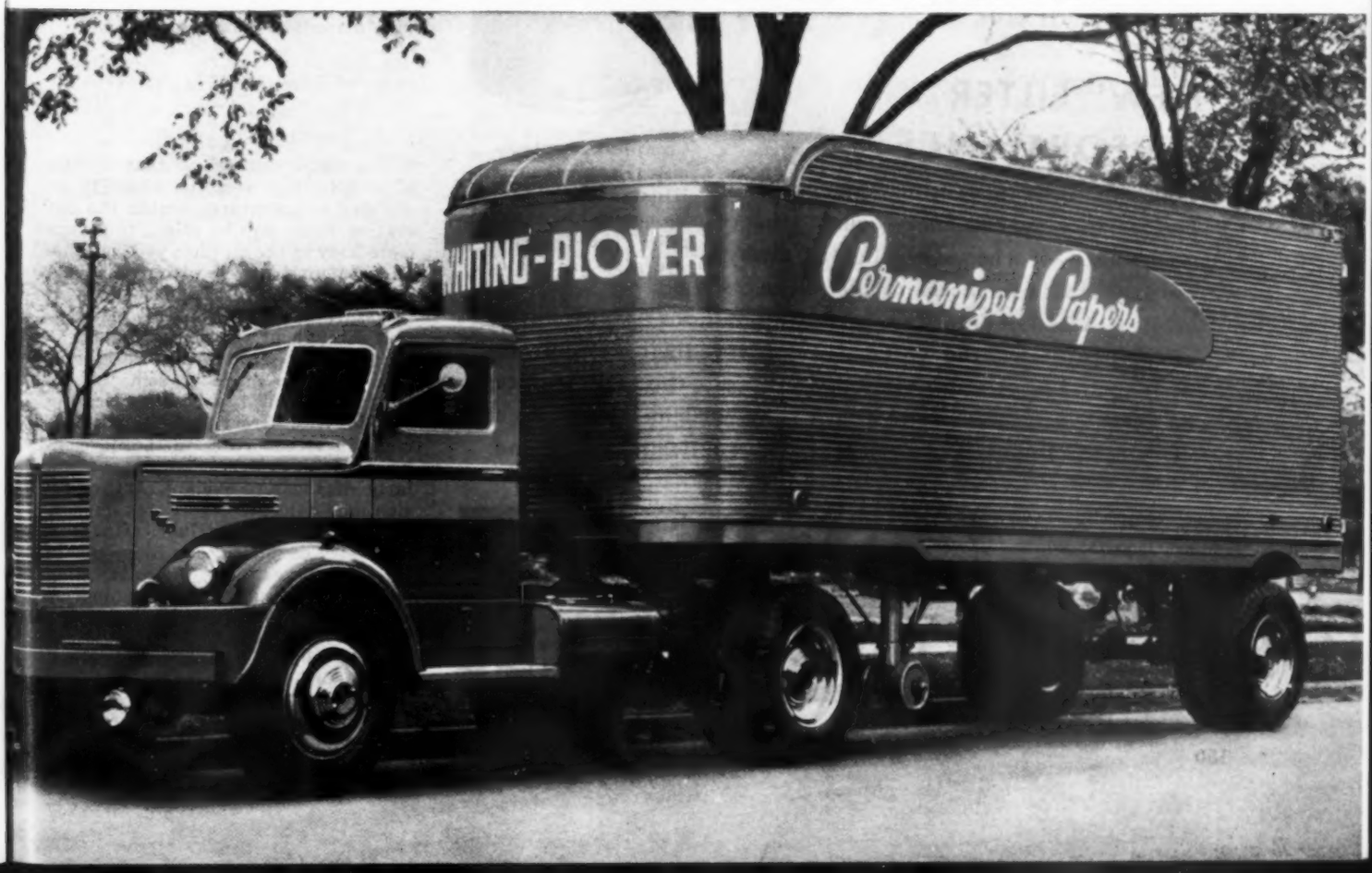
For 36 years buyers have said:
"FWD—the Best Truck Built"

FWD TRUCKS

THE ORIGINAL EXCLUSIVE BUILDERS OF FOUR-WHEEL-DRIVE TRUCKS

THE FOUR WHEEL DRIVE AUTO CO.
Clintonville, Wisconsin
Canadian Factory: KITCHENER, ONTARIO

FWD Model T-32 owned by the Whiting-Plover Paper Company, their third repeat order for FWDs. Their second, an FWD Model T-36, purchased in 1936, traveled more than 100,000 miles at a cost of less than $2.00 for replacement parts.



When Servicing
MICHIANA OIL FILTERS

Replace the elements with

MICHIANA ELEMENTS

Complete Replaceable Type Element illustrated above. Economical Re-Packable Type Elements are also available.

Insure
"NEW" FILTER PERFORMANCE

You can always have the maximum oil filter performance and efficiency—equal to that of a new filter—if when servicing you always use MICHIANA replacement filter elements.

MICHIANA Oil Filters are protecting millions of horsepower of engines all over the world, daily proving their high dirt-absorbing and oil-cleaning efficiency. To insure this performance, be sure when servicing that MICHIANA Elements are used. MICHIANA PRODUCTS CORPORATION, Michigan City, Ind.

Write for Bulletin 839

MICHIANA OIL FILTERS

depressants function, the most widely accepted one is that these materials coat the surface of the minute wax crystals. In this way both crystal growth and oil absorption by the wax are prevented at reduced temperatures. As a result, no gel formation occurs and the oil is free to flow at low temperatures.

VISCOSITY-INDEX IMPROVERS: The physicist defines viscosity as a measure of the relative fluidity of a liquid at some specific temperature. Viscosity will vary inversely with temperature, i.e., the colder the oil, the heavier or more sluggish will it become. As the temperature is raised, the same oil will become more and more fluid. Viscosity-index indicates the rate of change of the viscosity of a lubricating oil with temperature. The higher the viscosity-index, the less the viscosity of the oil changes with temperature.

Viscosity-index (V.I.) by itself is not indicative of the oxidation stability or performance qualities of a lubricating oil. Low V.I. oils may give as good performance as high V.I. oils. In machinery where starting temperatures are unimportant, such as stationary engines operated inside buildings, low viscosity-index oils have been used quite extensively for years with excellent results.

In order to be able to extend the usable temperature range for low V.I. oils for automotive engine service and for hydraulic oil systems, however, where starting and operating temperatures are sometimes quite low, it has been found necessary to develop viscosity-index improvers. These materials usually consist of high molecular weight compounds or highly polymerized materials such as products of unsaturated hydrocarbons, fatty acids, etc. The effect of such materials is illustrated below.

V.I. Improver % Added	*Saybolt Universal Viscosity @ 210° F.*	*Viscosity Index*
0.0	49.2	26
0.5	54.0	51
1.5	66.0	86

The above data show that by use of a V.I. improver, the viscosity at elevated temperatures within the operating range can be raised to assure more body in the oil film; yet the same oil at temperatures within the cold starting range will be sufficiently fluid to assure easy starting and distribution throughout the oiling system.

SUMMARY: A rather brief presentation has been made of some of the most important types of lubricating oil additives. Great strides have been made in recent years in the development of superior additives, particularly of the anti-oxidant, anti-corrosion, and detergent types, for improving the properties of lubricating oils. The story of additives is by no means closed, however. New and interesting chapters are continually opening up and older chapters are being revised. The almost miraculous potentialities of these addition agents present a constant and inspiring challenge to the oil technologist.

Better Trucks for YOUR Business!

"WE'VE HAD FORDS FROM THE START —EXCELLENT TRUCKS—FINE SERVICE"

"We've always operated a large number of Ford Trucks," wrote Mr. L. A. Raulerson, president of Great Southern Trucking Company, Jacksonville, Florida. *"On hard runs, long runs, in flat or in hilly country—even over some of the worst mountain roads east of the Rockies—we have always found our Fords capable and enduring beyond the limits of their reasonable capacity.*

"We think a great deal of our Ford Trucks, and have had occasion to appreciate the fine service Ford has always rendered, which is so easily obtainable everywhere."

Great Southern Trucking Company operates in North and South Carolina, Georgia, Alabama, Tennessee and Florida. Mr. Raulerson's high opinion of Ford Trucks for intercity transport service is shared by hundreds of successful operators, whose fleets cover every section of the nation.

Important new engineering advancements make the Ford Trucks now being built, the greatest in Ford history. These developments—several of which are listed at the right—are designed to bring you more economy, more reliability and longer service life. Why not see your Ford Dealer now?

Ford

ADVANCED ENGINEERING IN NEW FORD TRUCKS

New Economy and Endurance
Easier Servicing

A STILL GREATER 100 HP V-8 ENGINE with NEW Ford steel-cored Silvaloy rod bearings, more enduring than ever in severe service • NEW aluminum alloy cam-ground 4-ring pistons for oil economy • BIGGER, more efficient oil pump and IMPROVED rear bearing oil seal • NEW longer-lived valve springs • NEW improvements in cooling • NEW efficiency in ignition • in carburetion • in lubrication • in ease and economy of servicing operations • And available in all truck chassis except C.O.E. units—the rugged, thrifty 90 HP FORD SIX-CYLINDER ENGINE, with many important advancements.

FORD CHASSIS ADVANTAGES: Easy accessibility for low-cost maintenance • Universal service facilities • Tough, forged front axles • Extra-sturdy rear axles with pinion straddle-mounted on 3 large roller bearings, ¾-floating type in light duty units, full-floating in all others • 3 axle ratios available (2 in 1-ton unit) • 2-speed axle available in heavy duty units at extra cost • Powerful hydraulic brakes, large drums, cast braking surfaces • Rugged 4-speed transmission with NEW internal reverse lock optional at extra cost on light duty units, standard on all others.

FORD TRUCKS

MORE FORD TRUCKS ON THE ROAD • ON MORE JOBS • FOR MORE GOOD REASONS

VETERANS of YEARS of SERVICE

HEIN-WERNER
HYDRAULIC JACKS

are dependable--year after year

The long war period, when very few new jacks were made for civilian needs, furnished further proof that Hein-Werner Hydraulic Jacks are *built right.*

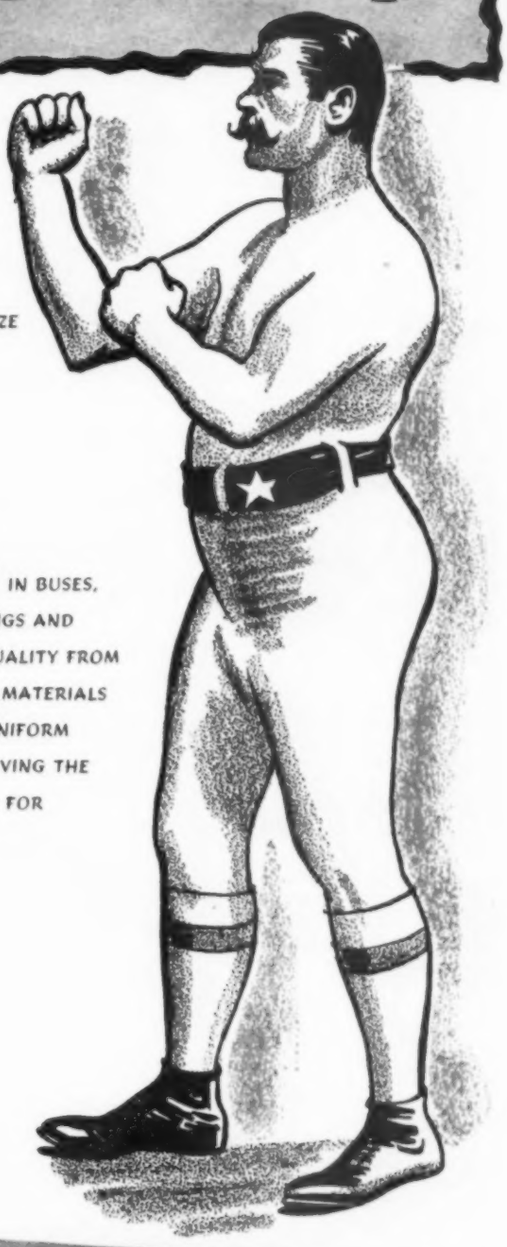
Many fleet owners have been using the same Hein-Werner Jacks for ten years or more. These dependable, super-powerful, easy-operating jacks are veterans of years of service, and many have outlived the life of the truck for which originally purchased.

Each month an ever-increasing number of new H-W Jacks become available—and details can be obtained through nearest H-W jobber. The complete line includes models of 3, 5, 8, 12, 20, 30 and 50 tons capacity.

12 TON MODEL

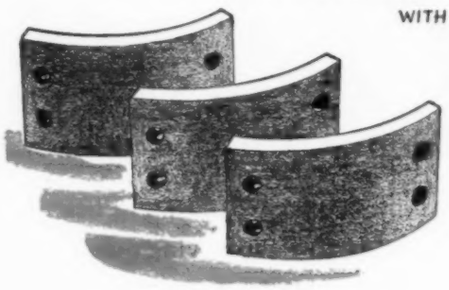
HEIN-WERNER MOTOR PARTS CORP., WAUKESHA, WISCONSIN

Famous Stops



TOM DOW STOPPED NED KILEY IN 7 SECONDS IN THE SHORTEST BARE-KNUCKLE BOUT ON THE RECORD BOOKS. THE CONTEST TOOK PLACE ON JANUARY 4TH, 1868, AT LEAVENWORTH, KANSAS, BACK IN THE DAYS WHEN PRIZE FIGHTING WAS ILLEGAL AND THE SECRETLY HELD BOUTS WERE OFTEN BROKEN UP BY SUDDEN RAIDS OF THE SHERIFF OR POLICE.

FAMOUS FOR SURE STOPS IN BUSES, TRUCKS AND PASSENGER CARS, ARE JOHNS-MANVILLE BRAKE LININGS AND BLOCKS, THE OLDEST NAME IN THE FIELD. COMPLETE CONTROL OF QUALITY FROM MINE TO FINISHED PRODUCT HAS PRODUCED J-M FRICTION MATERIALS WITH EXCEPTIONAL HEAT RESISTANCE, UNIFORM FRICTION AND DURABILITY . . . GIVING THE NEEDED SPLIT-SECOND BRAKING FOR TODAY'S HIGH SPEEDS.



STOP A MOMENT

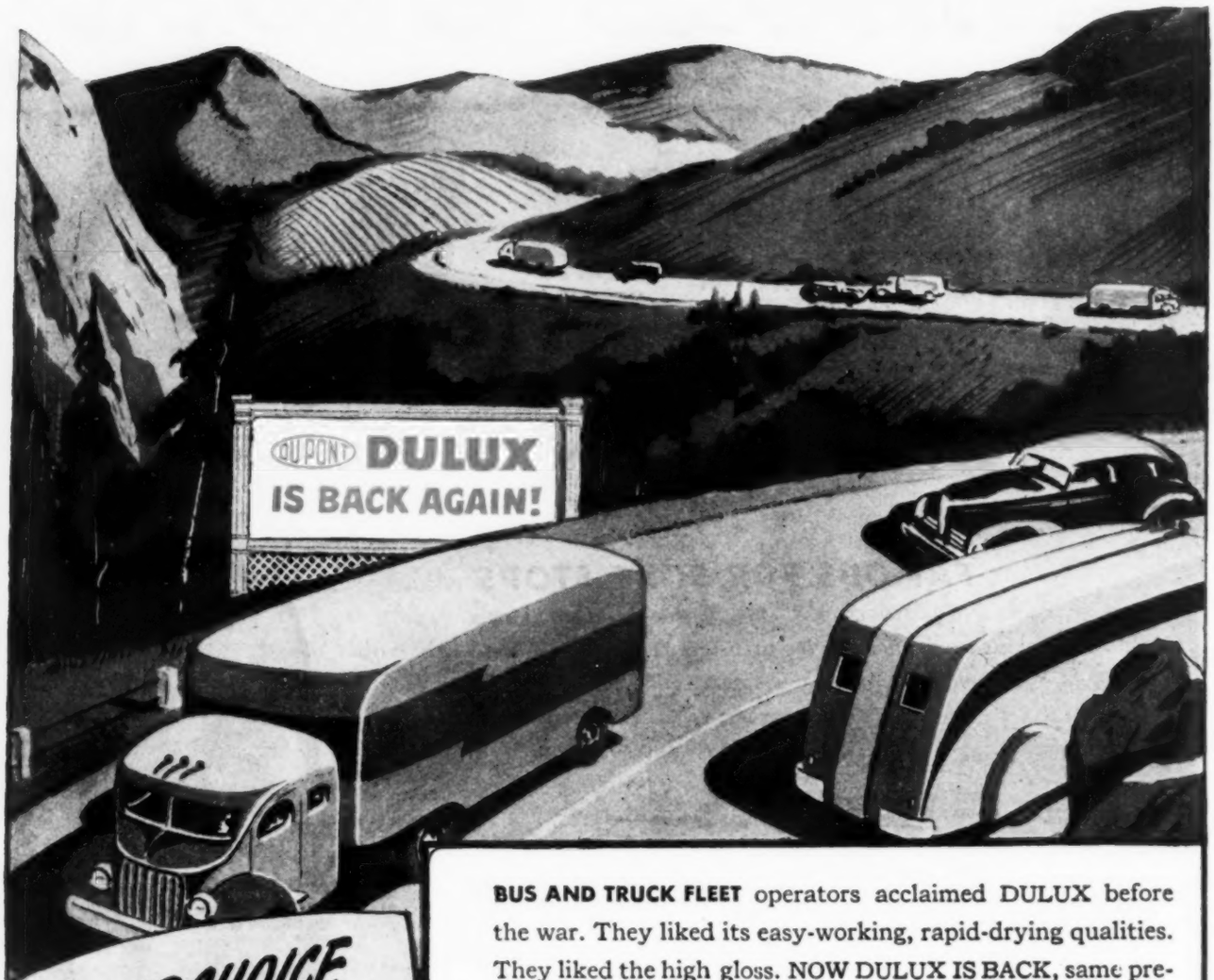
AND WRITE FOR YOUR COPY OF THE JOHNS-MANVILLE FLEET RELINER'S MANUAL . . . 80 PAGES OF CHARTS, DIAGRAMS AND OTHER FACTS ABOUT ALL POPULAR TRUCK, BUS AND TRAILER BRAKE SYSTEMS. ADDRESS: JOHNS-MANVILLE, BOX 290, NEW YORK 16, N. Y.

Johns-Manville BRAKE MATERIALS

JOHNS-MANVILLE JM PRODUCTS

• BRAKE LININGS • BRAKE BLOCKS • CLUTCH FACINGS

DULUX lasts longer on the road, saves finishing dollars in the paint shop



FIRST CHOICE for long-life— easy maintenance

BUS AND TRUCK FLEET operators acclaimed DULUX before the war. They liked its easy-working, rapid-drying qualities. They liked the high gloss. NOW DULUX IS BACK, same pre-war quality. If you've never used this outstanding finish before, you'll be amazed at the extra wear it gives. Tough DULUX resists scratches and weather. In the long run, DULUX gives more miles of protection and years of good looks at lower cost. E. I. du Pont de Nemours & Co. (Inc.), Refinish Sales, Wilmington 98, Delaware.

DU PONT
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DULUX
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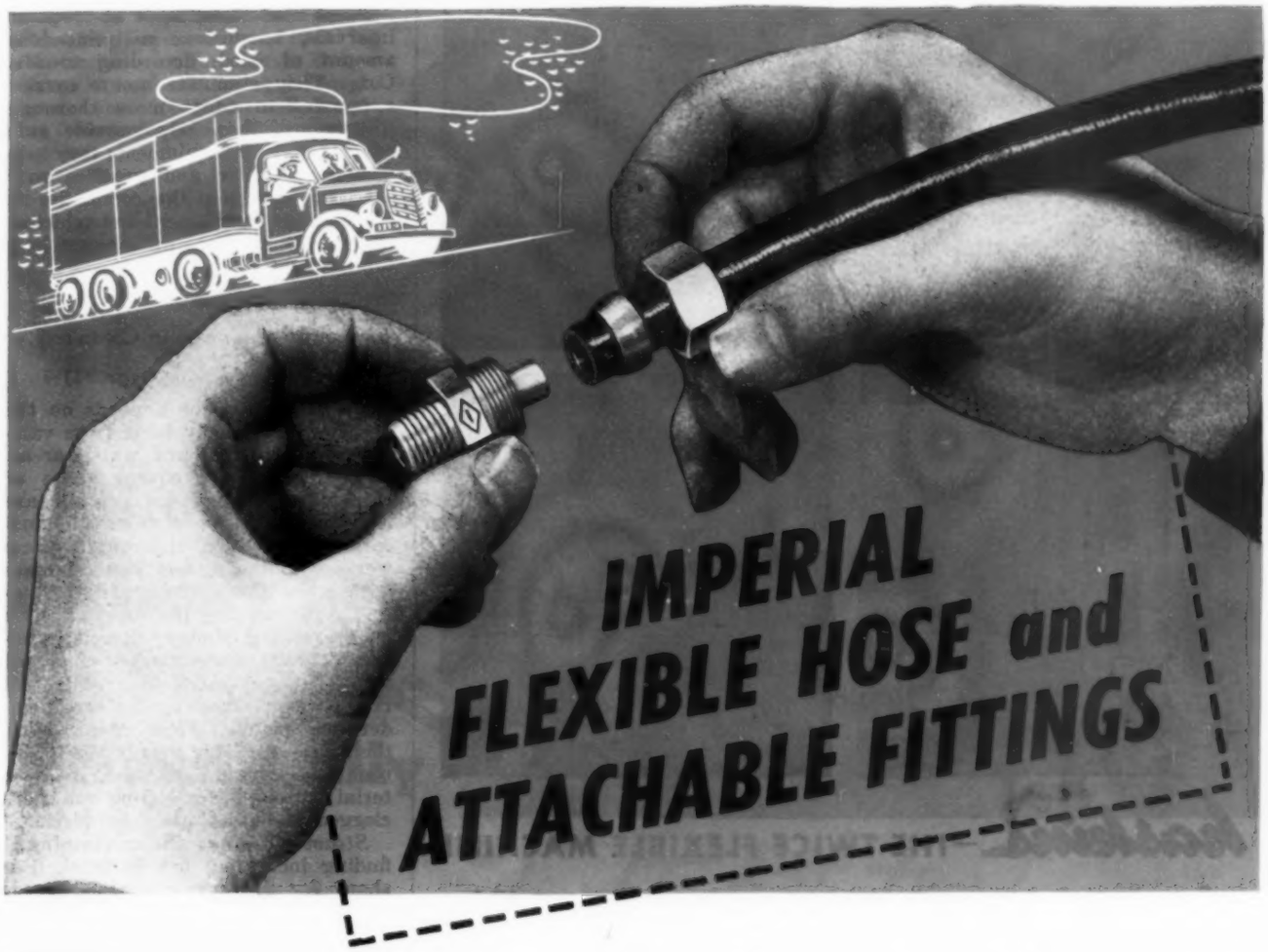
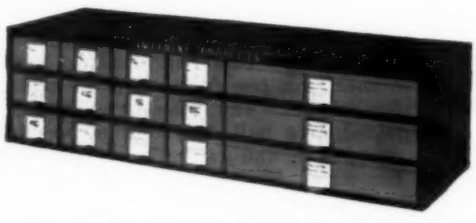
BETTER THINGS FOR BETTER LIVING
...THROUGH CHEMISTRY



Imperial "Make-Up" Kit No. 115-FN

Here is an inexpensive kit for making up the most commonly used flexible fuel lines on light trucks. Diagram in cover shows size and type of each fitting. Full instructions for assembly included.



Imperial "Master Stock" No. 315-FNA

This cabinet contains the hose and sizes and types of fittings for making up virtually all needed flexible gasoline, oil and oil filter lines. An excellent kit for fleet owners. Large drawers contain hose. Small drawers contain fittings. Labels are complete with illustrations.

....*for making up dependable gas and oil lines fast*

Flexible lines made up from Imperial Flexible Hose and Attachable Fittings stand up under toughest operating conditions of heat, cold, gasoline, oil, grease, pressure, vacuum, vibration, and constant flexing. These lines were used for maintenance of U. S. Army Ordnance trucks during the war.

Easy to assemble. Any desired flexible gasoline, oil or grease line can be made up in a few moments. To make this job even more simple, Imperial offers convenient "make-up" kits that contain the hose and all the most needed end connections all ready for fast assembly.

Fuel Line Assemblies

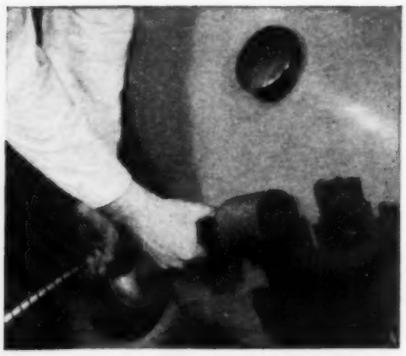
Standard Imperial Flexible Fuel Line Assemblies are available for quick, dependable replacements on many trucks. You will find them unsurpassed for long, trouble-free service. See list in Catalog No. 22-B.

★ *See Your Jobber*

THE IMPERIAL BRASS MFG. CO., 1232 West Harrison St., Chicago 12, Ill.

IMPERIAL

BRASS FITTINGS • FLEXIBLE FUEL LINES • TUBE WORKING TOOLS
BATTERY HYDROMETERS • FUEL STRAINERS • WELDING EQUIPMENT



haskins—THE TWICE FLEXIBLE MACHINE

The Haskins Flexible Shaft Machine is flexible in two ways—flexible in its wide variety of uses, flexible in its extreme ease of operation.

Used for body, fender, tire repair work—wire brushing, grinding, filing, drum and disc sanding, tire rasping, buffing, polishing—whatever the job, it can be done faster, more economically with a Haskins quality machine.

And it's easy to operate, too—can readily be moved to any part of the shop. Available in either pedestal, bench plate, or suspended mounting.

AH-5

½H.P. multi-speed countershaft, 900 to 3600 R.P.M., bench-height pedestal, 360° swivel.

Send for details

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Gentlemen: Send me a free copy of your Automotive Equipment Bulletin.

Name .....
Street ..... State .....
City .....

haskins
FLEXIBLE SHAFT EQUIPMENT

How ICC Inspection Works

(*Continued from page* 92)

After the inspection of the truck and its equipment is complete, the driver's hours of service are examined. This is done by looking at his log, or, if his log is not up to date, he is carefully questioned about his hours of work and his apparent physical condition is noted.

All the information gained from the test is marked on a vehicle inspection report, the front and back of which are reproduced on page 92. Four copies of the report are made and one is given to the driver to be turned in to his company for a file copy. The second copy is sent to the Bureau of Motor Carriers, who in turn sends it to the driver's company with a letter requesting the company to correct the conditions noted on the report and to sign and return the report to the Bureau. The third copy is filed in the office of the District Director and the final copy is sent to the I.C.C. Section of Safety in Washington, D. C.

In cases of serious violations of the safety regulations, the employer—and in some cases, the driver—is ordered to appear in a Federal Court for a hearing.

These road tests, made at frequent intervals, have done a tremendous amount of good, according to Mr. Cox. They stimulate motor carrier companies to adopt more thorough inspections; they help provide safe vehicles and safe equipment; they help drivers to know and practice safe driving; they help the companies to conserve their equipment and vehicles; and finally they are an indirect help to the public using the highways.

●

Refresher Course in Cleaning

(*Continued from page* 94)

mended for this job depends on the deposits, which may come from various sources. In hard water areas, lime scale is a frequent cause of trouble. Greasy sludge deposits are also common, since oil from the lubricating nipples on the water pump works into the system and combines with other dirt already there. Alkaline materials are the most effective on grease and sludge. Specially designed acidic materials are employed for safe removal of lime scale and rust without attacking the sound underlying metal. Fleet shops doing their own radiator repair work also use a heavy-duty, alkaline-type material in a tank, for boiling out badly clogged radiators prior to overhaul.

Steam Cleaning: Steam cleaning is finding increasing use in truck fleet shops for degreasing chassis, motor blocks and parts too large to be cleaned by the tank method. Steam cleaning is fast and thorough and it is often the only practical means of cleaning hard-to-reach or inaccessible areas. There is a wide selection of steam cleaning materials available to meet varying requirements and facilities of fleet operators.

The efficiency of steam cleaning naturally depends not only on the cleaning material but also on equipment. Self-contained type units that generate their own steam are widely employed. If a steam supply is already available, the benefits of steam cleaning can be secured at very low cost by purchase of a solution-lifting steam gun. This gun has two hose connections, one for steam, the other for solution. The cleaning solution is mixed in a pail, the solution hose is dropped in, and gun valves are opened for work. The special nozzle utilizes steam pressure to lift the solution to a height of twelve feet. The gun can be used at any point in the shop where a steam outlet is at hand.

Truck fleets that do their own repainting are, of course, interested in the most efficient methods of paint removal. Sandblasting is expensive and for that reason is often avoided. A method that is less costly and equally effective involves the use of a hot alkaline solution. This solution may be applied through a solution-lifting steam gun, or an installation for volume stripping may be made to flow the solution on trucks through a spe-

Below—an inspection bench in the Broaching Department, and in the big illustration—the New Britain Torque Tester at work measuring the toughness of these Tools...actually breaking them under tremendous pressure

Breaking Perfectly Good TOOLS Scientifically

to give you Mechanics Hand Tools that make money

Every day—beautiful, glistening New Britain Tools . . . Tools as fine as any mechanic ever handled . . . are offered up on the high altar of SAFETY—guillotined for YOUR protection! The New Britain Torque Tester shown above is a hard bitten, cold blooded judge of Tool perfection. It registers to the fractional ounce of strain the ultimate capacity of a Tool's ability to "take it". It's the final, positive proof that the Tool New Britain puts in your hands is RIGHT!

New Britain Hand Tools are not alone money makers of the first order—they're knuckle and job insurance for you as well. From the time they start as a rough piece of selected alloy steel, they must pass countless tests and inspection after inspection. Every step of their manufacture is controlled, checked and rechecked.

Ask your NAPA Jobber's salesman to show you this *quality tested* line. Every Tool in it has been engineered for the future—they're tomorrow's Tools TODAY! Once you've used one, any other tool "just won't do"—they're that good! The New Britain Machine Co., New Britain, Conn.

N·A·P·A National Automotive Parts Association — Assurance of Quality

The complete New Britain Line for Automotive, Aircraft, General Maintenance & Production Needs is sold by leading Jobbers.

New Britain

GREATER STRENGTH • BETTER FIT **HAND TOOLS**

RESTORE *Lost Power*

Sludge, gum and acid accumulations rob your engine of much of its power. **LOOSITE** is the safe, economical solvent for cleaning out these petroleum residues. It rids the engine of all sludge and gum quickly by reaching every working part—restoring *original* power. **LOOSITE** makes your engine "clean as a whistle".

After this simple **LOOSITE** treatment, add a can of **SILOO** with each change of crankcase oil and your petroleum residue problem is solved for good. **SILOO**, the seven-solvent liquid compound, *keeps* the engine clean by dissolving all *new* sludge and gum formations. It prevents rust, acid formation and corrosion. **SILOO** becomes part of the lubricant itself and cannot be removed by any standard filter.

A **LOOSITE-SILOO** treatment will show immediate results on any make truck or bus, regardless of quality or brand of oil used. Fifteen years of service to fleet owners and private operators endorses its use.

For sale by leading jobbers everywhere and White Motor Company branches and distributors.

SOLVENTS FOR ALL TYPES OF PETROLEUM RESIDUES
Petroleum Solvents
CORPORATION

General Offices: 331 Madison Avenue, New York 17, N. Y.
Plants and Laboratories: Port Reading, New Jersey · Petroleum Solvents Corp. of Canada, Ltd., Dominion Square Bldg., Montreal

If you heat with oil — write for information on
SILOO FUEL OIL TANK SOLVENT

cially designed spray nozzle. Equipment for this flow-on method may be set up on the regular wash-rack. A tank equipped with ample heating facilities is necessary, from which the solution is delivered by a pump to the spray nozzle. Solution runs into a sump below the rack and is pumped back into the tank for re-use.

Body Washing Methods: Clean trucks are normally an asset to any fleet owner. The truck bearing the company's name is, in effect, a traveling advertisement and a potential builder of good-will, as most fleet men are well aware.

Good truck washing materials can be obtained which remove grease, dirt and traffic film quickly and with complete safety to the paint. They are very free-rinsing, so that water-spotting is almost entirely eliminated. Special materials are also available for washing aluminum and stainless steel truck bodies.

Food Truck Sanitation: Cleaning of food truck interiors sometimes presents a special problem. Food products often leave residues that decay, giving off unpleasant odors and jeopardizing the quality of other foods being carried.

Such conditions may easily be remedied by the use of the same type cleaners employed for sanitation in food plants. One recently-developed material for this purpose deodorizes and disinfects as it cleans. Odors can thus be killed at the source and possible mold or bacteria growth arrested.

To sum up, no matter what type of cleaning problem may be encountered in connection with truck fleet maintenance, there are materials or specially-developed methods capable of meeting it.

The know-how of which fleet operators thus avail themselves has been drawn from cleaning experiences—both in their own fields and in a wide variety of other industries. Each of the above mentioned jobs is based on such experience.

●

Two New Truck Seats

(*Continued from page* 96)

essentially identical in their mechanical conceptions, These consist of a base, or the truck platform, to which are attached the arms or levers. The top of the arms support the seat proper. Between the seat proper and the base is a spring or a set of springs, depending upon the design.

The result is a mechanism which supports the seat, and which remains relatively stationary as the cab floor and the suspension mechanism moves up and down, absorbing shocks and jolts. This is the same action as in a passenger-car chassis suspension. When the seat cushion on the supenion is made relatively inactive, the seat moves with the back, cutting out back-scrub and abrasion.

Up to this point, the seat is a freely-moving spring system no different than an ordinary cushion. The hydraulic shock absorber is the added factor. As in passenger-cars, the shock absorber controls both the bound and rebound. Rebound is one of the most serious drawbacks of the ordinary seat cushion. The initial jolt into an ordinary seat cushion is absorbed if the springs are long and soft enough. But, when springs are soft for comfort they act like a suspension seat without a shock absorber,—the seat just keeps on bouncing, like a bird cage suspended from a spring.

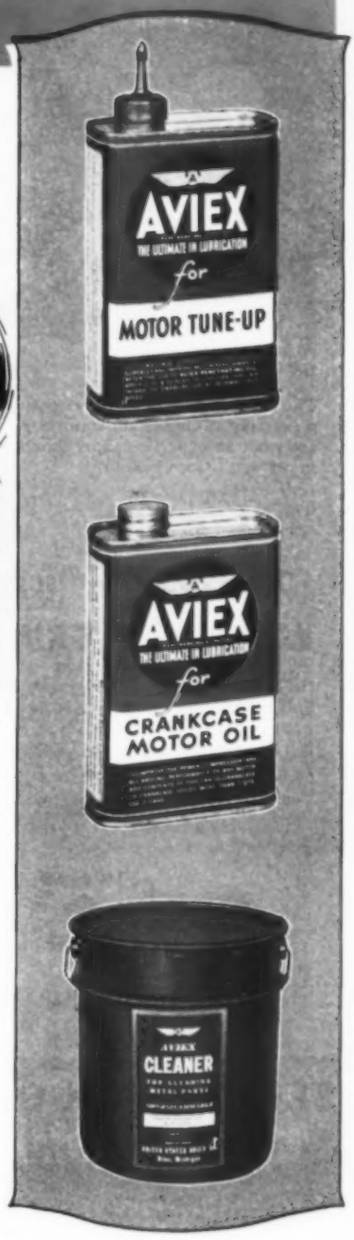
Rebound not only increases driver fatigue and fabric wear through flexing and scrubbing, but the return bounce constantly backs up against the new jolt coming from the road. This results in still sharper jolts and as well frequent bottoming.

The design advantage in picking up shock-absorption in a separate mechanism under the seat is the greater design potential available for improvement of the ride. Also better design in the cushion, as simply a soft place to sit, becomes possible.

While the new seat suspensions are directly comparable to passenger-car chassis suspensions, they embody one design element which is more advanced. The seat suspensions move

TUNE UP WITH AVIEX

Make Your Engines Really Sing!



Yes, AVIEX Products will really keep your engines tuned to concert pitch. You'll have smooth power and rhythm just as in new engines.

First of all you clean parts like carburetors, fuel pumps, distributors, air cleaners and any other disassembled parts with AVIEX Metals Cleaner. You do this easily by cold cleaning, in perfect safety and any temperature.

Then, you add AVIEX Crankcase Motor Oil to the regular engine oil. The "oiliness" of AVIEX provides the wetting power for reducing friction heat to a minimum. Keeps rings free, cuts down carbon, reduces sludge and keeps all residue in solution. All vital parts will work at their best with this protection.

Also, you add AVIEX Motor Tune-up Oil to the fuel. This keeps the valve stems free—giving positive valve action so essential for even compression and easy starting. It also assures a film of oil on all parts and your engines are ready to go and keep going at their best all the time. Thousands of fleet operators are doing so and so can you.

It will pay to let us give you the full facts on AVIEX.

AVIEX
THE ULTIMATE IN LUBRICATION

UNITED STATES AVIEX CO.
Factory & General Offices—NILES, MICH.

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A VELVET LIKE FINISH IS PRODUCED WITH A FEATHER LIKE TOOL

CORRECT BALANCE
CORRECT WEIGHT
CORRECT DESIGN
CORRECT SPEED

Thirty years manufacturing experience has made it possible for K-O Engineers to give you these four all-important features in a Valve Seat Grinder. These four determining factors are what an experienced mechanic looks for in a Valve Seat Grinder. They're all found in a Knock-Out Grinder.

It doesn't take a master mechanic to produce a velvet-like finish on valve seats. A mechanic with little experience can do it with ease and accuracy when using a K-O Grinder and K-O Stones.

"Knock-Out" UTILITY VALVE SEAT GRINDERS

are conveniently packed in a handy Tool Chest. This tool will prove to be one of the most worth while and most profitable in any shop. Not only is it built to grind valve seats but also for:

Carbon removing — Abrasive disc grinding
Tool post grinding — Misc. hand grinding

and for many other frequent and worth while grinding jobs around a shop.

MODEL P302 UTILITY VALVE SEAT GRINDER

SEE YOUR "K-O" JOBBER OR WRITE TO K.O. LEE COMPANY, ABERDEEN, S. D.

Manufacturers of Fine Tools for Over Thirty Years

entirely in frictionless rubber bearings which require no lubrication. Hence, as long as the seat is used regularly, the bearings will have infinite life.

The values for the driver using the new type seat are two-fold, i.e., reduced fatigue and great stability. The fatigue factor of his daily riding, and the long-term chronic effects of bouncing and jolting month after month and year after year, is greatly reduced. Greater stability means better control of the vehicle at all times and higher sustained speeds.

In turn, the fleet operator-employer can expect many direct cost savings, such as more deliveries per day, faster schedules and fewer "coffee" stops, fewer accidents and lower insurance rates, less days off for backache and kidney ailments, a lower labor turnover, and an appeal to higher caliber "salesmen" to handle the routes, the long runs and the cargo. Plus, practical elimination of much cushion maintenance costs. For all of these unusual benefits, the initial costs of suspension seating, while admittedly higher than ordinary cushions, becomes a minor factor

With better roads, higher sustained speeds and a trend toward greater load capacity which results in harder-riding trucks, the engineered suspension seat has become a "must". Widespread application of such seats as original equipment in the next two or three years appears certain. As optional equipment, it probably will be an approved accessory before the year is out, on the heavies of some of the largest truck manufacturers.

Meanwhile, there will be wide use of the new seats on trucks now running and those coming off the lines. These seats will be bought by fleet operators who have long realized the need for better seating.

Behind this development is the realization of truck operators of some of the discoveries in human engineering already made and being applied in the manufacturing industries.

This is the realization that higher production per man, more careful handling of machines and materials, higher safety records, and all-around employee good-will, are directly tied in with good working conditions.

All progressive manufacturers and industrialists now know that bad employee relations and poor working conditions cannot be "bought off" with high wages and take-home pay alone. That fact is now being thoroughly realized by fleet operators.

These, then are the reasons why truck operators are increasingly demanding from the truck designers better "working conditions" and especially seating for their employees, the truck drivers. In every sense of the word, truck drivers have taken a worse beating, physically, than any other industrial employee and through no one's fault except a lack of devices and a realization that it wasn't doing anybody any good. . . . Better seating, therefore, has all the earmarks of a new day, for both drivers and fleet operators.

•

Govt. Tests Tire Cords

(*Continued from page* 98)

better tread-wear rating than rayon tires, according to the report.

The report also contains detailed data on the procedures followed in performing the tire tests, as well as a larger number of tabulations. The report also contains copies of letters written by members of various Government agencies, including the War Production Board and the Department of Agriculture, the two agencies involved in the tests.

This report is known as No. 2921, in the Office of the Publication Board series of scientific and industrial reports. Photostat copies of the report may be obtained, on order, from OPB at $7.00, and microfilms at $1.00 each.

Photostatic or microfilm copies of the report may be ordered in Room 1326, Commerce Building, Washington D. C., or by mail. Mail orders should be accompanied by check or money order, made payable to the

Keep 'em on the Road...

with ***CORRECT*** LUBRICATION

SINCLAIR *SPECIALIZED* LUBRICANTS

A VITAL factor in keeping rolling stock available for continuous service is correct lubrication of *every part of the vehicle.* Failure of the smallest part—due to deficient lubrication—may put the entire vehicle in the shop . . . and shop time is non-revenue time.

Sinclair All-Point lubrication can be your guard against vehicle lay-off. Sinclair lubricants are made for *specific* service at every individual point . . . to help keep vehicles rolling.

Try . . . OPALINE MOTOR OIL for sure, safe engine lubrication . . . non-foaming OPALINE GEAR LUBRICANT with extreme pressure properties to prevent galling and scuffing . . . OPALINE CHASSIS LUBRICANT for stay-put protection in all weather . . . SINCOLUBE for assured, enduring wheel bearing lubrication.

Let these tested lubricants help keep your rolling stock rolling . . . regularly and economically . . . always.

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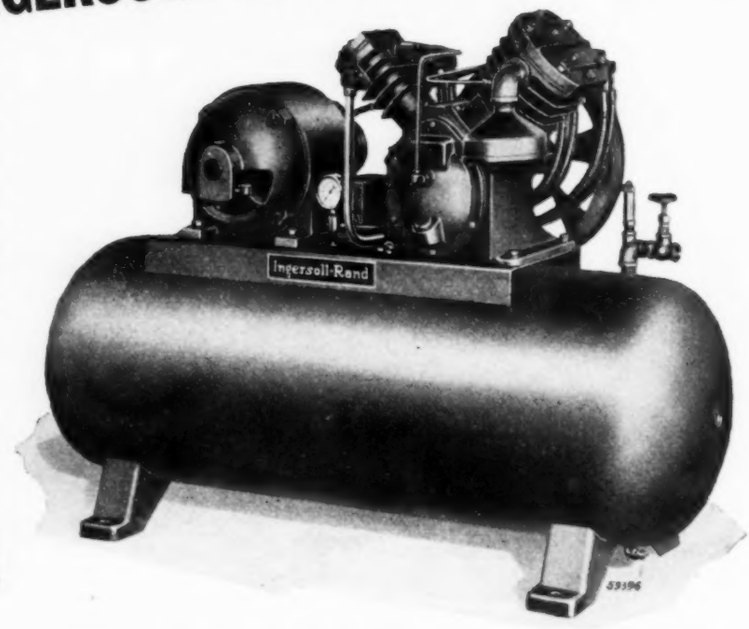
FOR FULL INFORMATION OR LUBRICATION COUNSEL WRITE SINCLAIR REFINING COMPANY, 630 FIFTH AVENUE, NEW YORK 20, N. Y.

no lost time ... IF YOU INSTALL INGERSOLL-RAND COMPRESSORS

Get the compressor that can take it, one which is designed for hard, unfailing service. Get an Ingersoll-Rand Type 30 Compressor of rugged construction, conservatively rated and having many feature which assure long life and trouble-free operation.

This is just the compressor you need to service and maintain your buses. These machines are available mounted on a receiver, on a steel baseplate, or as a bare compressor unit. Sizes ½ to 10 hp.

This I-R line of compressors is complete. Contact our nearest service branch or your local I-R distributor for further details.



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Treasurer of the United States, and should be addressed to the Office of the Publication Board, Department of Commerce, Washington 25, D. C.

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Sizes & Weights

(*Continued from page* 100)

ous bridges and a large mileage of highways too narrow for the safe accommodation of vehicles of such width precludes the present adoption of the higher standard of width.

The State Highway Departments and the Public Roads Administration are being urged to give consideration to the desirability of eventual provision for the accommodation of vehicles 102 inches in width in planning the reconstruction of Federal-aid and State highways.

Before promulgating the new tentative standards of motor vehicle sizes and weights, and speeds, several highway-user groups held a series of meetings with the Highway Transport Committee, presenting data and testimony pertinent to the tentative recommendations then being considered by the Committee.

By this exchange of views, many divergent aims were reconciled, at least to the extent of obtaining, generally, common support for the necessary legislation. This series of conferences was held with such organizations as: Automobile Manufacturers Association, Motor Truck Division, Industry Committee; National Council of Private Motor Truck Owners, Inc.; National Association of Motor Bus Operators; American Trucking Associations, Inc.; Truck Trailer Manufacturers Association; American Automobile Association; and the National Highway Users Conference.

The foregoing is all of the information that we have on this subject up to press time (March 18th). Undoubtedly the results of the voting will be made available for a report in our next issue.

•

G. I. Reports

(*Continued from page* 102)

Office, 45 G Street, N. W., Washington 25, D. C., for $1.00 per copy.

The *"Special Aids"* employs the technique of breaking down jobs into their component parts in order to determine job relationships. The result is a series of job families, each of which gives the civilian occupations related to a military occupational specialty. When the returning serviceman applies for a job, his Form 100 will plainly show his military specialty with the specification number of that specialty. If you will then refer to the appropriate "aid", you will find a brief description of his duties and responsibilities in his Army or Navy job, as well as a list of related civilian occupations, ranging, when possible, from the almost identical civilian job, to civilian jobs for which he could qualify with additional training.

Here is an example of the use of Form 100 and *"Special Aids"*: Dick Smith may drop into your office next week and ask for a job. You have plenty of jobs, many of them skilled and far too few applicants to fill them; but you are a bit skeptical when you find that Dick has no civilian experience whatever which will qualify him for any of the jobs for which you need men.

If you are not too hasty in telling him to, "Come back in a few weeks and maybe we will have something," you may discover some very interesting facts about his Army experience. He says he was a central station fire control specialist in field artillery and his Form 100 verifies it and lists Electrical Maintenance Man, Electrical Repairman, Electrical Equipment Worker, Tester, etc., as related civilian occupations.

While your first thought might have been: "I can't use this man. We don't make or repair guns," if you will take note of the related civilian occupations on his Form 100 and look up in *"Special Aids"* the more extensive list with descriptions for this military occupational specialty (referring to number in parenthesis) you will find that the central station fire control specialist deals with electrical control systems and has to be able to replace such parts as condens-

(*Please turn to page* 166)

REPLACE WITH THE PISTON

7 OUT OF 10

Truck and Bus Manufacturers Specify as Original Equipment

Increases Engine Performance

Reduces Maintenance Costs

Through painstaking experiment, research and testing, truck and bus engineers select and specify every part of the vehicle they have designed. An overwhelming majority, over 70%, have placed their stamp of approval on Zollner Pistons. For the best in performance at lowest maintenance cost, follow the recommendation of these engineers—always specify Zollners.

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ORIGINAL EQUIPMENT IN AMERICA'S FINEST MOTORS

ZOLLNER MACHINE WORKS
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PISTON EQUIPMENT

For Internal Combustion Engines
Both Gasoline and Diesel

ARMY E NAVY

Anthony HAS IT...

CONSTRUCTION EQUIPMENT THAT KEEPS TRUCKS ON THE MOVE

• ANTHONY "SUPER" HYDRAULIC HOISTS AND BODIES, up to 30 ton capacity—with "power speed lift" and "rubber restraining blocks," two of many features that explain the evident preference for Anthony equipment on the job.

• ANTHONY HYDRAULIC LIFT GATE . . . one of the remarkable new war-developed pieces of equipment for loading and unloading. Raises and lowers loads from ground to truck level.

• ANTHONY MATERIAL SPREADER . . . rugged, all steel; for road building, maintenance and ice control.

• ANTHONY HYDRAULIC PLATFORM "BOOSTER" HOISTS especially designed to make dump bodies out of flat bed trucks.

Write for complete details on any Anthony product. Available through all truck dealers and Anthony distributors.

ANTHONY HYDRAULIC

Manufactured by ANTHONY CO. Streator, Ill.

Psychology in Modern Driver Training

EVERY day, up and down the roads of America, there travels a man who devotes his life to highway safety, through training truck drivers in the art and science of motor vehicle operation. He is Professor Amos E. Neyhart, of the Institute of Public Safety, Pennsylvania State College.

Included in his novel driver training methods is an aptitude test and a physical examination. There are tests on alertness, nervous stability and reaction, color-blindness, glare-resistance, field of vision and many others. He uses special patented devices for various tests. Unique road tests are given for demonstrating the driver's ability and are so arranged that participation is in the nature of a game of skill.

This safety program was started nine years ago and today approximately one truck in ten in the United States is reported as being driven by an operator trained under the Neyhart system.

Last year a national program for fleet supervisors' training was put into effect by ten national traffic safety organizations, who are now working to establish an annual course in modern training techniques through university centers in every state.

•

New Building to Have Built-in Road

THE FIRST built-in highway in a commercial structure, other than a few garages, will spiral upward to each of the 13 floors in New York's forthcoming Interstate Commerce Center Building.

According to the builders of the $15 million structure, all shipping and receiving problems of its industrial tenants will be solved by the 32-foot road, plus loading areas large enough for 20 commercial motor vehicles on each of the four-acre floors, plus 12 big freight elevators.

In addition, there will be a private entrance and reception room at the street level for each tenant, served by a private passenger elevator. A garage is included in plans for service facilities to tenants.

•

"Transportationwise" Is America's Slogan

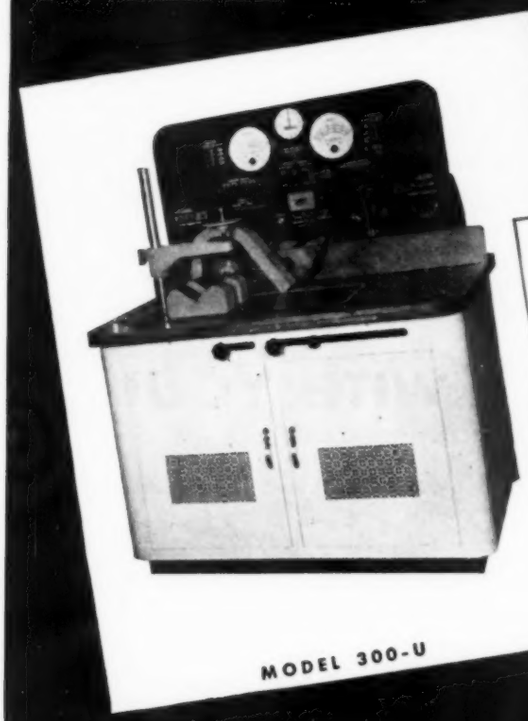
LAND transportation, as represented by highway use, will be the vital factor in any future war whether on American soil or abroad, according to Brig. Gen. Edward H. Lastayo, Chief of the Highway Division, Office of the Chief of Transportation.

Concerning military transportation in the post-war period, the General elaborated on the flexibility of the motor vehicle and its freedom from the fixed installations of other types of carriers, which will always be the immediate and almost certain targets for the new and highly-accurate long-range weapons.

General Lastayo urged particularly, that drivers of all motor vehicles be encouraged to increase their operating skills; that unnatural barriers between the states, which retard the normal development of effective highway transportation systems, be reduced, and the establishment of adequate highway systems.

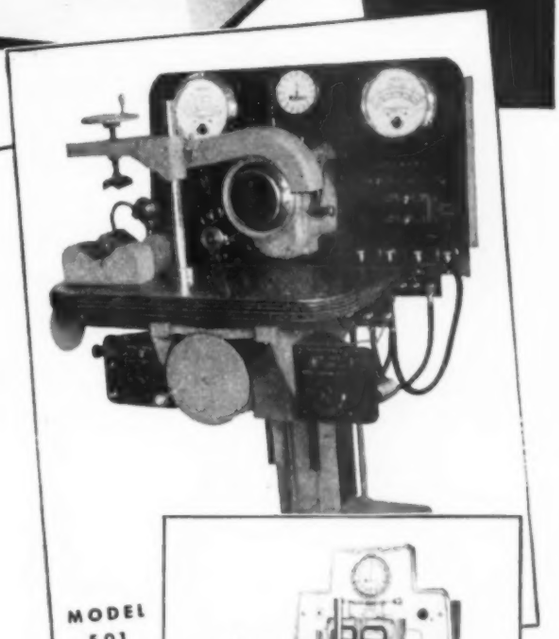
"Industry should be prepared at all times, to go into mass-production of the right types of war transport and equipment and everyone engaged in highway transportation ought to stay abreast of their joint problems and become acquainted with each other's objectives, to the end that while America is producing for peace, it will also be preparing for the eventualities of war," the General said.

A WEIDENHOFF TEST BENCH —for EVERY FLEET SHOP

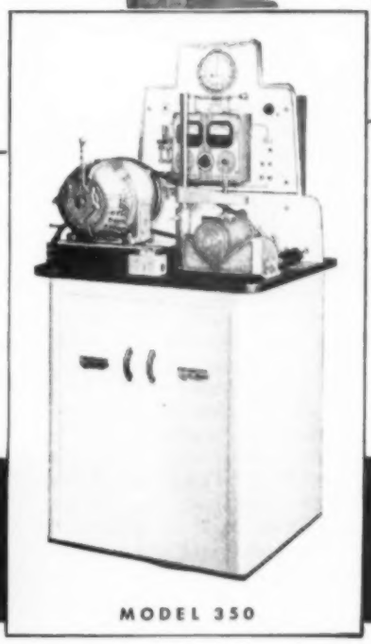


MODEL 300-U

MODEL 300-C



MODEL 501



MODEL 350

There's a Weidenhoff Generator Test Bench to fit the needs of every fleet operator shop—large or small. These benches, capable of handling all your generators, regulators and starting motors insure fast, accurate testing.

And, with the Weidenhoff Magneto Test Fixture—optional with the purchaser—you have a direct and reduction-drive for testing magnetos on the larger model test benches.

Fleet operators everywhere are finding that Weidenhoff equipment is keeping their units working at maximum efficiency, over longer periods and at lower operating costs. Do as other fleets are doing—equip with Weidenhoff.

FULL INFORMATION AVAILABLE

AUTOMOTIVE SERVICE WEIDENHOFF EQUIPMENT AVIATION

JOSEPH
WEIDENHOFF
INC.
CHICAGO 24, ILLINOIS

THE
Travelling Companion
YOU LIKE TO HAVE
WITH YOU!

SCANDINAVIA BRAKE LININGS
DIVISION OF SCANDINAVIA BELTING COMPANY
250 CENTRAL AVENUE, NEWARK, NEW JERSEY *Plant:* CHARLOTTE 1, N. C.
BOSTON • CLEVELAND • JOHN L. HALL CO., 625 N. W. COUCH STREET., PORTLAND 9, ORE.

G. I. Reports

(*Continued from page* 162)

ers, resistors, tubes, and relays, and install electrical wiring; must change brushes and bearings on electrical rotating machinery; must analyze trouble on control and transfer circuits.

In Table I, of the related civilian jobs, the electrical repairman is shown with an indication that the central station fire control specialist will need only brief training to become familiar with the specific electrical systems and devices in use in the plant. Your foreman is glad to get Dick and says he thinks he can teach him the job in no time. You've filled one of the jobs that's been giving you a headache, and Dick Smith has a job he can do that will utilize his Army learned trade. Two weeks later the foreman reports that Dick is a good man, and "Couldn't we get another man who did the same work as Dick for that other electrical maintenance job we need to fill?"

One of the most difficult problems in employing veterans will be the vocational adjustment of the disabled. Here is the most challenging need for selective placement. Employment of handicapped workers involves, in addition to vocational considerations, a careful matching of the physical requirements of the job to the physical capacities of the worker.

A technique has been worked out to determine and match the physical characteristics of workers and jobs. This technique consists of two parts: (1) Physical demands analysis; and (2) Physical capacities appraisal. Through the war period it has been of value to employers in facilitating the employment of women and handicapped workers and it should be most useful in the selective placement of the disabled veteran.

Some of the discharged veterans returning to you will have reached an elevated rank in the military service. Thus, a clerk may have become a colonel and a stock boy a major. Modern warfare stimulated individual initiative, and these men will have won their bars and eagles on demonstrated ability. They will have proved that they can lead others and assume greater responsibility.

Rather than worry about the problem that such men may create, industry should be able to find plenty of room for such new blood. The war has inadvertently developed latent qualities which would have not been uncovered otherwise. Certainly a service to industry has been performed, since the process has made available to it a new source of leaders.

In order that you may take the fullest advantage of this opportunity and fulfill the implied confidence and friendship with your former employees and fighting men which you expressed during the war, the War Department urges you to make the fullest and most intelligent use and study of the Separation Qualification Record, Form 100, a copy of which is given to every ex-service man, upon his discharge, for his own use.

JOIN the Q-O-M CLUB

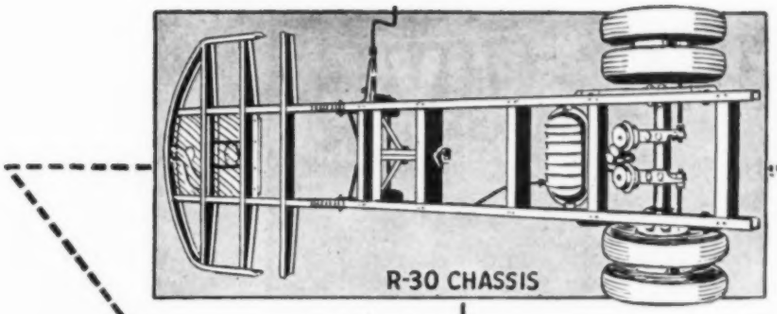
(See p. 120 and Mail Today)

Firebaugh 3-Wheeler

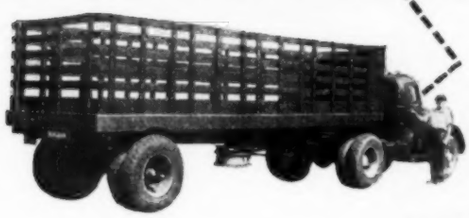
(*Continued from page* 108)

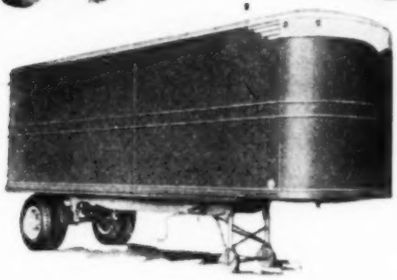
motorcycle-type springing and steering at front, and what appears to be shock-absorber type springing at the rear. Brakes are of the cable-controlled, internal-expanding type. The frame is tubular in section and is welded to the large pan-type "shield" which comprises the front of the chassis.

Because of the fluid drive principle, there are no gears to shift and



ADAPTABILITY





A Kingham-Universal Chassis is Readily Adaptable to Your Own Hauling Requirements!

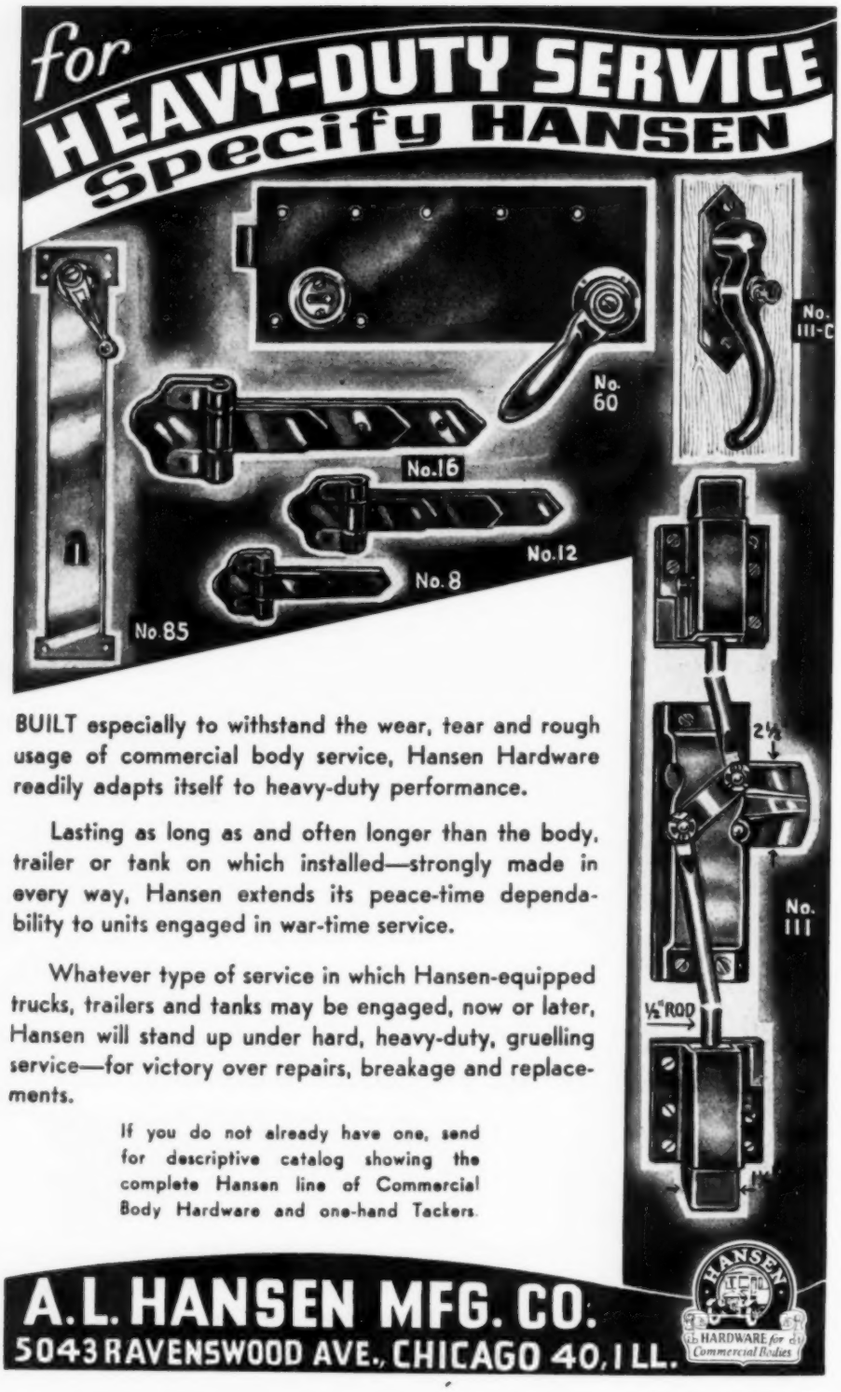
When the Kingham Chassis was named the Kingham 'Universal' . . it certainly fit the product to a 'T'. For given the R-30 Chassis as a starting point . . any individual hauling problem may be efficiently solved in jig time! From the Kingham Chassis . . open, stake, panel, or other special body requirements spring with the greatest of ease. Then too, as conditions of operations change, new modifications may be made as necessary.

You can't afford to be without the most flexible item in trailer transportation . . . . see it today . . for tomorrow's job!

KINGHAM TRAILER COMPANY, INCORPORATED **LOUISVILLE, KY.**

NATIONAL SALES **Kingham UNIVERSAL** **NATIONAL SERVICE**

"A Load Behind is a Trip Ahead"



BUILT especially to withstand the wear, tear and rough usage of commercial body service, Hansen Hardware readily adapts itself to heavy-duty performance.

Lasting as long as and often longer than the body, trailer or tank on which installed—strongly made in every way, Hansen extends its peace-time dependability to units engaged in war-time service.

Whatever type of service in which Hansen-equipped trucks, trailers and tanks may be engaged, now or later, Hansen will stand up under hard, heavy-duty, gruelling service—for victory over repairs, breakage and replacements.

If you do not already have one, send for descriptive catalog showing the complete Hansen line of Commercial Body Hardware and one-hand Tackers.

A. L. HANSEN MFG. CO.
5043 RAVENSWOOD AVE., CHICAGO 40, ILL.

all speeds are governed by a foot throttle. The low center of gravity provides constant balance.

The Firebaugh Special weighs approximately 600 pounds without body. It is 92 inches long, 50 inches wide; the wheelbase is 66 inches and the turning radius is given as 14 feet. It is said to be especially adapted to light pick-up and delivery work, special deliveries, and car pick-up and delivery by garages and service stations. Its use is also apparent in the case of drug stores, farms, inter-plant transportation and all other merchandising endeavors that demand quick, economical delivery of small items.

The first preview of this new vehicle was staged at the Pan-Pacific Auditorium in Los Angeles, during the Southern California Industrial Exposition, from September 1st through September 9th. Some fifty pilot models are said to have been in use during the past three years under difficult working conditions.

The maker declares that in the marketing of this vehicle he will adhere to the conventional manufacturer-distributor-dealer policy of distribution. Fleet operators may obtain more information by writing to Toolcraft Manufacturing Company, Huntington Park, Calif.

New Crosley Engine

(*Continued from page* 104)

space in the cylinder block. In order to prevent rapid corrosion of the thin-walled alloy steel cylinder liners and steel water jackets, the entire water-containing surface is treated with a special coat of plastic, baked on in such a manner that it cannot be removed by even strong acids or caustic solutions, it is claimed. It is also claimed that because of the ribbing of the sheet steel water-jackets, no damage will be done even if the cooling system freezes up solid.

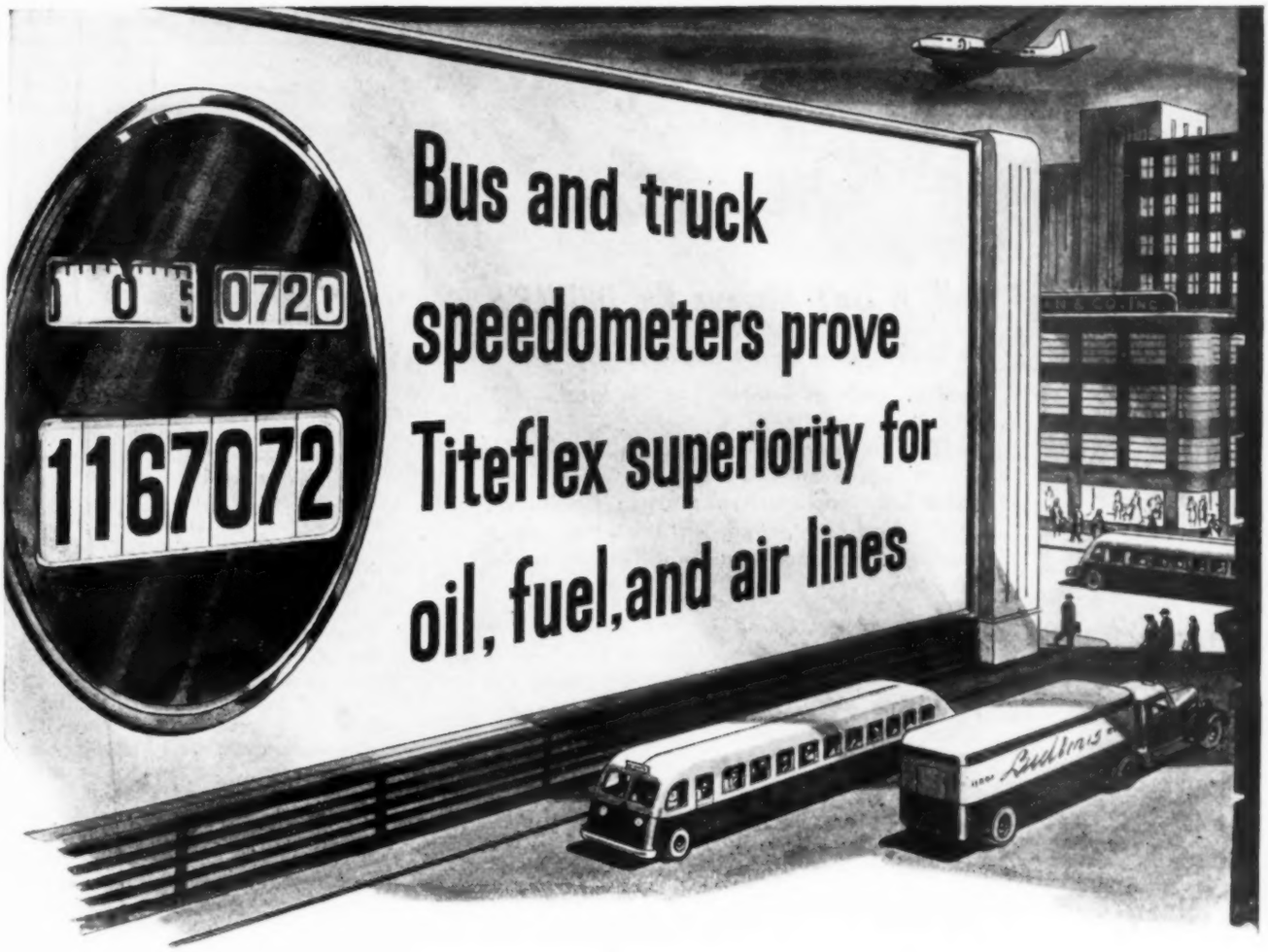
Other engine details include aluminum pistons; side-mounted centrifugal water-pump; drop-forged connecting rods with integrally-forged bolts; precision-type, steel-backed babbitt bearings; aluminum camshaft bearings; full-pressure lubrication with gear-type oil-pump located in crankcase; stamped sheet-steel oil-pan. Also of copper-hydrogen-brazed stampings are such parts as fan assembly, fan pulley, water-pump, pulley, water-pump impeller, etc.

The new series of Crosley automobiles are described by the maker as "high-power, light-weight, low-cost automobiles, capable of doing 60 m.p.h. and operating at 50 m.p.g. at a speed of 35 m.p.h." Through the replacement of steel with aluminum, including the bodies, a 200-pound saving in weight of the entire vehicle is effected.

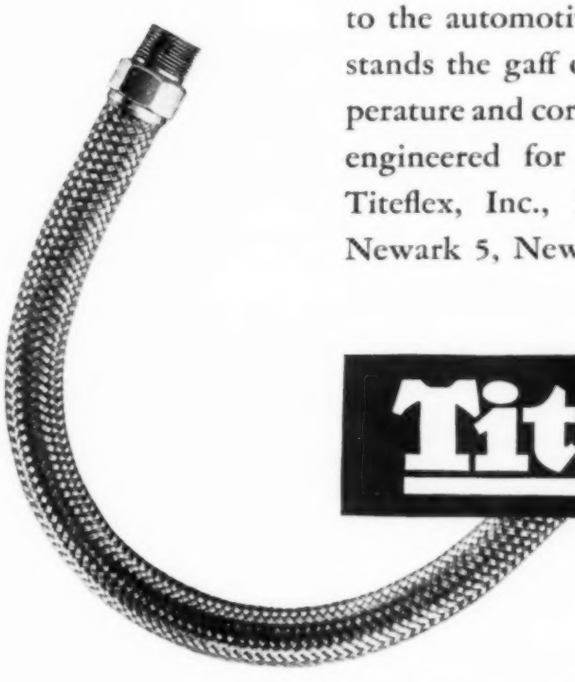
The new two-door Crosley, for example, measures 145 inches from bumper-to-bumper, has an 80-inch wheelbase and a 40-inch tread. The overall height is 57 inches and its overall width is 49 inches. The new sedan has two seats in front, two in back, and a luggage space 25 x 40 inches. The spare tire (4½ x 12) is carried beneath the storage compartment. Overall weight of this new vehicle is estimated at approximately 1,000 pounds.

The new Crosley automobiles are equipped with a standard, 3-speed transmission, standard single-plate clutch, and conventional engine accessory equipment, such as starting motor, generator, distributor, fuel-pump, carburetor, air-cleaner, etc. There is nothing revolutionary in these engine accessories, nor in the clutch or transmission. Lighting equipment consists of two standard headlights with high and low beams, and standard tail-lights. Gasoline tank capacity is 6 gallons; three quarts of oil and five quarts of water are required.

No further information has been released by the manufacturer of this car, regarding chassis, suspension, axles, etc. The engine, of course, will be in the front and it is believed that drive-units and springing will be conventional. The bodies will be produced in Crosley's plant in Marion, Ind., where the car will be assembled and the finished units shipped. In the beginning, according to factory



Increased trouble-free mileage... increased operating efficiency, with fewer service interruptions—and less maintenance cost! That's what Titeflex on oil, fuel, and air lines means to the automotive industry. It's the line that stands the gaff of vibration, extremes of temperature and corrosive attack... the line that's engineered for heavy-duty transportation. Titeflex, Inc., 541 Frelinghuysen Avenue, Newark 5, New Jersey.



Titeflex

THE ALL-METAL FLEXIBLE TUBING
THAT STAYS TIGHT

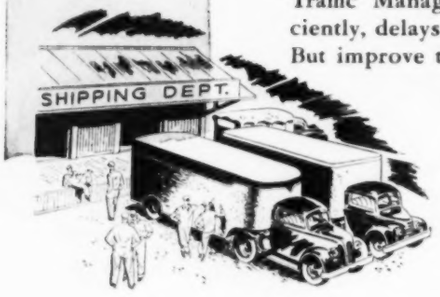
WHOSE FAULT IS IT When a Truck Wastes Time?

Well, It Isn't Always the DRIVER'S

—There are some delays he can't control, such as waiting for the load.

★ The tendency used to be to blame the driver. "Frank must've stayed too long in that coffee joint down the road, arguing politics"; or—"When Andy stopped in Joe's Place for a coke, I'll bet he loafed around listening to the juke box."

BUT—*much of the idle time of a truck is due to the OFFICE!!* Take the Shipping Dept.—if it doesn't make the morning load ready *early*, the truck doesn't get away *promptly*. Take the Traffic Manager—if he doesn't route it efficiently, delays at traffic bottlenecks may result. But improve the office system and several expensive trucks increase their running time an hour a day!



IDLE!

A Whole Hour Lost
Because the morning load wasn't Ready!

Only when you find out *when* the delays occur and for *how long*, can you go after the *cause*. Install *Servis Recorders* —their charts show up *all* delays—idle time can't be hidden. Write for the full story. The Service Recorder Company, 1375 Euclid Avenue, Cleveland 15, Ohio.

The Servis Recorder
The Good Driver's Best Friend

officials, the car will be sold through selected franchised dealers in about 150 trading centers, and also through a number of the leading department stores in the larger cities.

The process of manufacturing an automobile out of brazed stampings, though brand-new for automobiles, is a wartime development that has proved its value in service, according to Powel Crosley, Jr., president of Crosley Motors, Inc., Cincinnati, Ohio. During the war, Crosley manufactured portable motor generator sets for the U. S. Navy, which are said to have successfully employed this type of engine in hard use.

The new engine was developed for automotive work in Cincinnati by Crosley engineers, under the direction of Paul Klotsch, chief engineer, with the aid of Lloyd Taylor. Mr. Taylor, of Taylor Engines, Inc., is said to be the inventor of the engine, to which Crosley Motors, Inc., now has the exclusive license, so far as manufacturing and further development are concerned. The wartime use of this engine was restricted to the powering of engine-generator sets, for PT boat installation; also for powering the gun turrets of amphibian landing tanks. Over 2,000 of these engines were built by Crosley during the war, it is declared, and also that the initial testing procedure called for continuous 1,200-hour operation, which the engines passed, with practically no service attention being needed at the end of this period of operation.

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Evans Truck Heater

(*Continued from page* 106)

taken into the heater at a point free from exhaust fumes.

For summer operation, the standard cowl ventilator can be used for introduction of fresh air to the plenum chamber. Special openings are provided for introduction of fresh air to the plenum chamber; other openings distribute the air directly to the driver and other cab occupants. When the cowl ventilator is closed during rain, or when movement of the truck cannot scoop up enough air through the cowl ventilator, the powerful fan can be switched on, to force air into the cab.

According to A. R. Lintern, manager of the Thermo-Aire Division, Evans Products Company, the Evans System of heating and ventilating is economically possible only with the exclusive Evans Airfoil Fan. This fan was engineered to produce a large volume of air against the pressure necessary to do the job—at the lowest possible drain on the battery. The heavy-duty fan motor, designed expressly for the Airfoil Fan, provides maximum efficiency at low amperage, it is claimed. The Evans System uses a large heater core with more than enough capacity to permit the driver to dress lightly and comfortably, even in sub-zero temperatures, according to Evans engineers.

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New Chrysler Cars

(*Continued from page* 124)

or slip crosswise to the wheel. This is an obvious safety feature, especially in blowouts.

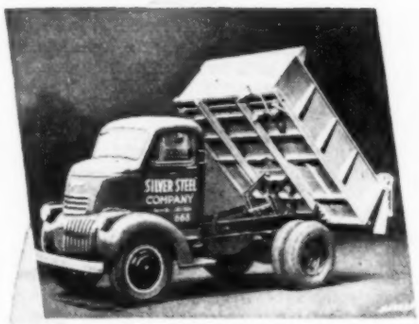
A new engineering feature is the improved hydraulic control for the transmission, with the control unit built in. The gears have been made larger and a non-locking feature is provided. Improved acceleration has been secured by the reduction of transmission gear ratios. There are only two driving ranges in this transmission, high and low. The low range is used only under most exceptional conditions, such as might not be confronted by the average motorist in a lifetime. This transmission contributes greatly to giving Chrysler's gyrol Fluid Drive its maximum efficiency and value to the driver. The gyrol Fluid Drive and the new hydraulic transmission are entirely separate units, although their functions are complementary to each other.

Engine efficiency has been increased by new features and improvements in those previously used. "U"-slot plated aluminum pistons have been restored, replacing the cast-iron pistons installed in the 1942 line when aluminum was a critical war material.

Heil Fleet
Helped Speed
Grand Coulee
Project
A fleet of 12 trucks, equipped with Heil Rock Bodies, moved 480,000 tons of rock and other excavated material over 372,000 miles of difficult terrain in less than six months.
This feat is one more proof that Heil Rock Bodies and Hoists have the ability to perform dependably under the toughest operating conditions.

Heil Rock Bodies stand up and take the pounding—day after day

. . . because they're correctly reinforced for long wear



Heil body with single-cylinder hoist.

Heil heavy-duty body
with twin-cylinder hoist.

Specialized engineers designed this husky model to take the terrific day-in, day-out punishment of handling rock and ore. Sturdy channels, closely spaced, give this unit a ruggedness that assures dependable, profitable operation with minimum "down-time" for costly repairs and maintenance.

You can save time and money and increase your hauling profits by using the famous Heil heavy-duty rock body. Write for complete details. *Ask for bulletin.*

BH-129

THE HEIL CO.

GENERAL OFFICES • MILWAUKEE 1, WISCONSIN

THE Entire Line IS
ON DRESS PARADE
All dressed up and going places! All Burd "Graf-Flox" Piston Rings—both "Engineered for Results" Combination Sets and open stock—are now appearing in new, attractive cartons on jobbers' shelves throughout the country. Clearly marked, readily identified, and easily remembered, these new packages are receiving a warm welcome. Join the parade . . . specify Burd "Graf-Flox" Piston Rings on your next re-ring job.
BURD
GRAF-FLOX
PISTON RINGS
Quick-Seal
COMBINATION SET
NO. 323 .030
NO. 415 .040
OIL RINGS
3½ X 3/16 STD
3¼ X 5/32 .046
NO. 575 .020
COMPRESSION RINGS
3 X 3/32 .030
BURD
GRAF-FLOX
PISTON RINGS

BURD PISTON RING CO. • ROCKFORD, ILLINOIS

New Chrysler Cars

(*Continued from page* 170)

Piston rings are also chrome-plated. A new design of the intake manifold is used to provide greater operating flexibility at low speeds, more nearly even acceleration and improved torque at low speeds.

Another engine improvement is a rearrangement of the wiring and accessories that permits greater accessibility in making adjustments and repairs. This is a feature that will be appreciated by all service mechanics, as well as by fleet owners who do service work on their own cars.

There is a new "full-flow" oil filter, with a replaceable element. This filters all oil before it is pumped to the working parts. There is also a new type of gasoline filter, placed in the fuel tank. This filter, which was developed by Chrysler Corporation engineers for Army vehicles, makes it possible to dispense with the use of a filter at the carburetor and a sediment bowl on the pump.

Interior improvements include: A new plastic steering wheel of greater strength and rigidity, with a heavy chrome frame covering the three spokes and the top of the steering column; a new instrument panel that contributes both to beauty and driving convenience; a speedometer with non-glaring background and white numerals, and the color signal indicating various speed ranges visible on the dial as well as on the pointer; a newly-designed metal radio screen, finished in chrome and placed behind the plastic radio grille; new clear plastic control knob on levers and window regulators; new hand-brake warning signals; and a new entrance lamp on the cowl to illuminate the front compartment. This light operates when the door is opened.

The line comprises six models, the Royal, Windsor, and Town-and-Country, powered by six-cylinder engines; and the New Yorker, Saratoga and Crown Imperial, powered by eights. There are 26 body styles and an option of 13 standard colors is offered.

The popular "Town-and-Country" line that Chrysler introduced in 1941 —a grealy advanced development of "station wagon" type of vehicle, in which beauty and comfort have been added to the utilitarian value— has been extended to comprise a brougham, six-passenger sedan, club coupe and convertible coupe. Bodies of the "Town and Country" cars are made of strong and beautiful woods left in their natural colors.

•

New Plymouth Cars

(*Continued from page* 124)

ically indicates speed range through green, amber and red lights, operated by the speedometer. Green is for speeds up to 30 mph; amber between 30 and 50 mph; and red for speeds over 50 mph.

The new Plymouths feature many other new improvements, all adding materially to safety, performance, beauty, comfort and value. Among them are the following: New propeller shaft and universal joints with needle bearings; ignition coil-mounted on engines; new location of generator regulator; ignition cables enclosed in separate compartments; new front-end sway eliminator; stainless steel fender weldts, eliminating rust; heavier bumper support anchor; new license bracket; new inside door handles; new window regulators; new rear axle oil seal; formate type differential gears; new door water drainage; new binding on door interiors; new oil pump; new type spark plugs; new exhaust valve material; new accelerator linkage; new bumper jack; new larger windshield defroster passages; new waterproof relay; and new waterproof generator regulator.

Safety has again been given paramount consideration in the scientific grouping of controls in the front compartment. Throttle, head-lamp and choke control buttons are conveniently grouped beneath the dial panel. A new type starter has made it possible to use a handy push-button control which is located on the left side of the instrument panel.

Design of the new Plymouth instrument panel is striking in its beauty; at the same time it achieves a real contribution to safety through quick, "ready-reference" arrangement of gauges and instruments and a new, non-glare background of rich, gray-brown wood grain finish.

MALABAR

a product division of **menasco** MANUFACTURING COMPANY

805 SOUTH SAN FERNANDO BOULEVARD, BURBANK, CALIFORNIA

SOUTH BEND PRECISION LATHES

Here is essential service equipment that can quickly pay for itself in your shop. With it you can re-machine worn or broken parts that have been repaired or built up by welding or metal spraying, refinish valves and commutators, finish pistons, make bearings and bushings, machine shafts, sharpen reamers and cutters, and rework and fit parts.

A South Bend Lathe can save its cost by PREVENTING costly breakdowns—by saving days of delay—by keeping cars and trucks on the road. Write today for free catalog.

FREE CATALOG

Write today for this South Bend Lathe Catalog. State size of lathe (9", 10", 13", 14½", or 16" swing) in which you are interested.

Lathe Builders Since 1906

SOUTH BEND LATHE WORKS

448 EAST MADISON STREET • SOUTH BEND 22, INDIANA

Electric-Pneumatic Tools

(*Continued from page* 72)

"We believe that tools of still lighter weight and more compact design are possible."—*U. S. Government Dam Project.*

"We pick out tools by the type which we believe is best for the job."—*Lumber.*

"We buy tools of any reputable make."—*Towel Supply Fleet.*

"No preference for either electric or pneumatic. Select each as it may be suited for the job to be done."—*Citrus Farming Fleet.*

"Think that both electric and pneumatic have their uses. The air tools can be operated at any speed you need, which is something to think about."—*Contractor.*

"We are contractors on roads and bridges. Sometimes we have air and not electricity, therefore we need both kinds of tools."—*Contractor.*

"Choice depends on adaptability. Electric some places, and pneumatic tools in other places."—*Bus Operator.*

"Believe pneumatic tools are a little safer to operate; and also a little lighter."—*Bottling Company Fleet.*

"Have not used air-operated tools long enough to know which are best. We have been favorably impressed with them, however."—*Taxicab Fleet.*

"We intend to trade-in or dispose of some of out-of-date shop equipment and replace it. We need bench grinders, power screw-drivers, etc."—*Bldg. Material Fleet.*

"May add more tools when they become available and will add those best suited for the job we have for them." *Petroleum Fleet.*

"Have not had enough experience with pneumatic tools to give a fair decision or opinion."—*Fire Dept. Fleet.*

"We have only recently started using pneumatic tools, but so far, they are years ahead of the electric tools."—*Trucking Company.*

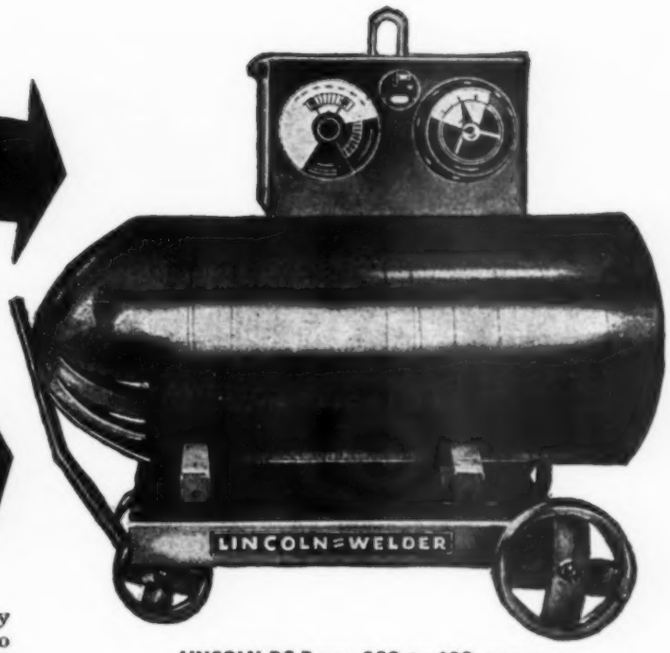
"We have no single preference in makes. Most companies make at least one outstanding tool."—*Public Utility Fleet.*

"We expect to add a 50' x 100' extension to our main shop. When finished, we will purchase considerable new equipment, including lathe and extended machine shop, as well as improved automotive service equipment."—*State Dept. of Public Works.*

And that, folks, is the story on Electric Vs. Pneumatic Tools. As one fleet man so aptly put it, both of them have their uses—electric in some places and pneumatic in others. Now that many items of shop equipment and tools are beginning to become available once more, we hope that you can use some of the material which you have just read in making your selection, but you will understand that we are not trying to influence you, even by subtle inference, either way.

You will note that our Question-of-the-Month department is being continued in this issue and in all subsequent issues. Somewhere in each issue you will find a questionnaire. The general idea is to get replies from as many fleet operators as possible—and from as representative an assortment as practical. The information thus gained is then made available; first to the fleets which have participated in furnishing the data; and later to everybody who reads this publication, in the form of a feature article like the one which you have just read. Naturally, some of these articles are more "meaty" and of wider general interest than others, depending upon

SURPLUS ARC WELDERS

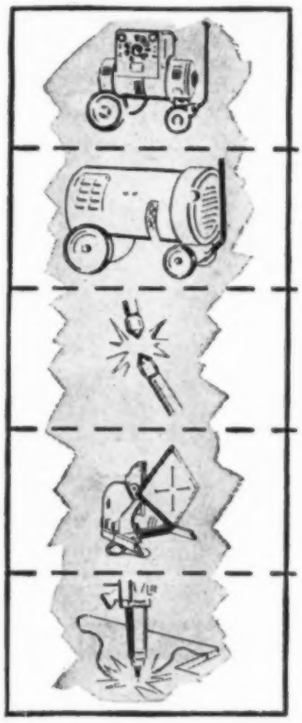


LINCOLN DC Type: 300 to 400 amperes

This and many other types and makes of welding machines and related equipment are available from war surpluses.

Here is a chance to pick up arc welding equipment in any desired quantity at low cost. Large quantities of 300 to 400 ampere MG type welders—primarily of Lincoln and Hobart make—are available for sale. Largest inventories are in the Boston, Detroit, Cleveland, Chicago, Atlanta, Nashville, Houston and Philadelphia offices of War Assets Administration. They may be obtained, however, by contacting any of the War Assets Administration offices listed below. Equipment from 200 to 400 amperes in DC, gasoline-engine driven and AC sets are available in smaller quantities . . . also multiple operator types and related equipment such as electrodes, welding rods, weld positioners and flame cutters. Spot, seam and flash welders are likewise available. The equipment is for both production and construction. Write, wire or phone your War Assets Administration office today.

ALL ITEMS SUBJECT TO PRIOR SALE



HOBART
Standard models of this make available in large quantities and most ratings.

WESTINGHOUSE
Portable models available in limited quantities.

RESISTANCE WELDERS
Spot, seam, butt and flash type welders for production operations—also portable or gun types.

WELD POSITIONERS
Many sizes and capacities, including head and tailstock combinations.

FLAME CUTTERS
Both single and multiple torch types, portable and stationary.

VETERANS OF WORLD WAR II

To help you in purchasing surplus property, veterans' units have been established in each War Assets Administration Regional Office.

FREE FACTS

TO WAR ASSETS ADMINISTRATION:
Please send me information on availability, condition and location of the following types of equipment:

- ☐ *HOBART ARC WELDERS*
- ☐ *LINCOLN ARC WELDERS*
- ☐ *WESTINGHOUSE ARC WELDERS*
- ☐ .....*ARC WELDERS*
- ☐ ..... (other equipment)
- ☐ *RESISTANCE WELDERS (spot) (seam) (flash)*
- ☐ *FLAME CUTTERS*
- ☐ *WELD POSITIONERS (capacity).....*
- ☐ *WELDING ROD OR ELECTRODES*

Name.....

Firm.....

Address.....

City.....*State*.....

176-1

WAR ASSETS ADMINISTRATION

OFFICES LISTED BELOW ARE TEMPORARILY IN RECONSTRUCTION FINANCE CORPORATION AGENCIES

Offices located at: Atlanta · Birmingham · Boston · Charlotte · Chicago · Cleveland · Dallas · Denver Detroit · Helena · Houston · Jacksonville · Kansas City, Mo. · Little Rock · Los Angeles · Louisville Minneapolis · Nashville · New Orleans · New York · Oklahoma City · Omaha · Philadelphia Portland, Ore. · Richmond · St. Louis · Salt Lake City · San Antonio · San Francisco · Seattle · Spokane Cincinnati · Fort Worth (Telephone 3-5381)

176-1

YANKEE YANKEE YANKEE YANKEE YANKEE
MIRROR MAGIC?
NO! NOT WHEN YOU KNOW HOW!
Feats of magic always require consummate skill—painstaking attention to details—years of experience.
Making YANKEE Automotive MIRRORS requires the same magical skill—the same perfecting details—born of more than a quarter of a century of experience. It's therefore no mere accident that YANKEE MIRRORS provide high fidelity vision — without tricky illusions — without distortion. No wonder YANKEE MIRRORS have always been the finest in the world — the finest that money can buy!
NO. 241 REPLACEMENT MIRROR HEAD. Made to fit the No. 245 Telescopic Adjustable Mirror
NO. 245 TELESCOPIC ADJUSTABLE MIRROR. Adjustable to any position. For Universal mounting on Trucks & Buses
YOU'RE SAFE WHEN YOU CAN SEE with
TRADE MARK
YANKEE
REG. U. S. PAT. OFF.
You'll always find them packed in the familiar Red, Yellow and Blue package.
TRAILER AND TRUCK MIRROR
REFLECTORS
DIRECTIONAL SIGNALS
CLEARANCE LAMPS
CONVERSION KITS
ASK YOUR JOBBER SALESMAN
YANKEE METAL PRODUCTS CORP., NORWALK, CONNECTICUT, U. S. A.

the subject chosen and the number of fleet operators directly concerned. Briefly, that is the way this department functions.

•

CHRYSLER FIGURES

• Few of the car and truck makers have issued any actual production figures to date. For that reason, when one does, it may be *news*. . . . The following statement coming from Chrysler Corporation last month may therefore be of interest to fleet men. We quote it here verbatim:

"Although Chrysler Corporation has suffered no work stoppages within its own plants since the beginning of the year, shortages of certain necessary materials have limited its production. Currently, however, its manufacturing schedules are mounting and we expect that before long our dealers will be able to make substantial deliveries of new passenger-cars as well as trucks at retail.

"As of March 14, 1946, the Company had shipped to its 9,651 dealers all over the country 53,000 new passenger-cars and 55,000 new trucks. Truck shipments were largest because limited production was authorized before the war was over. The current rate of production of both cars and trucks together is 2,300 vehicles per day."

The above figures appear to include all cars and trucks made by Chrysler Corporation divisions since July 1 of last year, since they mention production "authorized before the war was over." . . . At any rate, there are the figures.

•

MUCH INDUSTRY STATISTICS IN ODT's LATEST REPORT

• The Office of Defense Transportation recently released a huge report, prepared in the Highway Transport Department and entitled *"A Review of Highway Transport and Transit Industries During the War."*

The bulk of the report is devoted to tables setting forth, by vocational uses, information as to certificates outstanding and equipment; miles, and motor fuel certified to commercial motor vehicle operators at specified periods during the war; and analyses and explanation of the material. A review of the problems confronting the industry and the conservation effected, and appendices covering a digest of ODT General Orders relating to motor vehicles and the organization of the ODT Highway Transport Department, are included.

Motorized transport, of relatively minor importance in World War I, had by the start of World War II assumed vital importance. The bulk of the local transportation of property and much of the tonnage moving in intercity service, were handled by truck. Passenger-cars and buses performed the bulk of both the local and intercity movement of persons.

The sharp reduction in new equipment and critical supplies available to civilians, brought about by the diversion of the major share of productive facilities to military purposes, confronted the nation with a major problem. The report shows that on the basis of releases of trucks made during the war to civilians, only 25 percent of the "normal" needs of civilians, based on pre-war demand, were met. The result was that as of August 31, 1944 (the date of much of the statistical material contained

WHAT DOES ENGINEERED AND IDENTIFIED MEAN?
IT MEANS WOHLERT PARTS ARE MADE WITH SKILL AND THE PACKAGES ARE EASY TO READ
Wohlert CORPORATION
LANSING 5 MICHIGAN

Cut Operating Costs *with* **PH7** **Cooling System Cleaner and Preservative**

- ELIMINATES RUST *and* SCALE!
- STOPS FURTHER CORROSION!
- GUARDS AGAINST OVERHEATING DAMAGE!
- PRESERVES RUBBER HOSE!

National Aluminate Corporation
6216 W. 66th Place Chicago 38, Ill.

in the report) approximately 31 percent of all of the truck equipment in the United States was of 1935 and earlier year model. In fact, the limited replacements made to civilians, and unprecedented efforts toward conservation, resulted in an age distribution of equipment as of August 31, 1944, not greatly different from that just before the war. The report also reviews briefly problems in the supply of motor fuel, replacement parts, tires, manpower, and other items.

On the basis of estimates made of the consumption of motor fuel, passenger-cars reduced their consumption of motor fuel during the war period by about 40 percent, and trucks by about 23 percent. Commercial buses were confronted with tremendous increases in traffic. The passenger load in local bus operations in 1944 was approximately 95 percent greater than in 1941, and in intercity bus operations was approximately 200 percent greater than in 1941. Hence commercial buses were required to increase their motor fuel consumption by about 35 percent. Increases occurred in practically all commercial operations, although in a few fields, such as long-haul transportation by private motor truck, there apparently was some withdrawal. In the case of intercity for-hire motor carriers, the traffic during 1943 and 1944 was approximately 19 percent greater than in 1941.

Considerable conservation of motor transport equipment was accomplished through reduction in mileage and increases in operating efficiency. It is estimated that the mileage operated by trucks in 1944 was approximately 25 percent below that in 1941 and that of all commercial motor vehicles was about 20 percent less than in 1941.

Trucks engaged in retail distribution were able, through limitations on the number of deliveries, the elimination of special deliveries and call-backs, and other restrictions, to reduce their mileage during the war by about 45 percent under that operated in 1941. On the other hand, the heavy traffic demands on passenger carriers required an increase in mileage which, however, was relatively small, compared with the tremendous increase in traffic of these carriers.

Much of the conservation in the case of commercial motor vehicles resulted from desirable operating practices promulgated in the form of general and special orders or otherwise by the Highway Transport Department of the Office of Defense Transportation. But the bulk of the conservation resulted from the voluntary acceptance of conservation measures recommended by the ODT or initiated by the operators themselves.

In the foreword to the report, Guy A. Richardson, Director of the Highway Transport Department says: "The ability of the industry to weather the crisis with which it was faced, represents an accomplishment of which it and the American people may well be proud."

The report was prepared under the supervision of James O. Riley, Chief of the Inventory and Statistics Section of the Highway Transport Department of ODT. . . . A limited supply of copies of the report is available for distribution. They may be obtained from the Office of Defense Transportation, Room 5104, Interstate Commerce Commission Building, Washington 25, D. C.

A Complete Line
1/4 H. P. to 10 H. P.
PACKAGED
Units of Power
"Wayne Honest Measure"
for your protection
EASY TO EXPAND AIR FACILITIES
THERE'S a Wayne "Packaged Unit" in the size and type you need to replace your old worn-out compressor . . . or augment your air supply for additional air tools. Wayne Compressors are all Wayne built . . . . backed by Wayne's Guarantee and Nation-wide Service Organization! Ask for catalog.
THE WAYNE PUMP COMPANY
FORT WAYNE 4, INDIANA
WAYNE AIR COMPRESSORS

HIGH-WHEELED MOTOR BUGGY...WITHOUT A STEERING WHEEL

As late as October, 1908, an automobile manufacturer contended that "all roads are made to be traveled by high wheels" and built his autos accordingly. But time proceeded to evolve the type of car that suits the modern need. And the modern car's sensitive throttle is best served by the responsive functioning of . . .

AIRTEX
Factory Tested FUEL PUMPS

The purity and high quality of the alloy used in AIRTEX cover and body castings prevent warpage and assure uniformity, accuracy and lasting strength. Our modern high pressure casting machines prevent porous castings. All other parts are made with the same thorough care; tolerances on some parts must be as close as one to two thousandths of an inch. All parts are assembled accurately, carefully inspected and the diaphragm assembly is tested for absolute gas-tightness.

Assembled with AIRTEX Diaphragms Guaranteed for 50,000 MILES

"AIRY" TEX

"Your profits climb with the AIRTEX Line"

AIRTEX AUTOMOTIVE CORPORATION, FAIRFIELD, ILL.

INDUSTRY'S GOLDEN JUBILEE

● America's automotive industry this Spring will celebrate 50 years of progress in a colorful Golden Jubilee event that will bring together all the great names in motordom for the first time, anywhere.

The $4,000,000,000 motor-manufacturing industry, grown from a cluster of alley shops to a world-renowned industrial enterprise, spread over 44 states and a dozen foreign countries, is to mark its fiftieth milestone with a dramatic program in Detroit's Masonic Temple, May 31.

Tribute to the automotive industry pioneers, survivors of the "horseless carriage" era, whose vision and courage helped put the nation on wheels, will feature the public ceremony, according to George Mason, president of the Automobile Manufacturers Association.

In addition to the industry event, sponsored by the Automobile Manufacturers Association, a series of programs extending through the Summer and Fall will be held by groups in various sections of the nation as part of Golden Jubilee year, Mr. Mason pointed out.

Mr. Mason, who is president of the Nash - Kelvinator Corporation, said that this Spring the industry plans to invite to Detroit as many of the surviving pioneers as can be assembled, and to pay honor to them for the world-transforming changes they set in motion fifty years ago.

A cavalcade of ancient cars will parade through the Motor City in the late afternoon, taking the automotive pioneers to a public reception and banquet at the Masonic Temple.

From the stage, awards of the automotive industry will be bestowed on outstanding pioneers, while those who are unable to get to Detroit, because of illness or for other reasons, will be picked up by radio in a nationwide network broadcast.

●

NEW LINCOLN CEILINGS

● Ceiling prices for three additional Lincoln 1946 model passenger automobiles have recently been announced by OPA. . . . The increase over the 1942 price for the Continental Coupe and Cabriolet is greater than that for the Convertible Coupe, because prices for these two models were advanced less between the January 1, 1941 base date, and 1942.

The higher prices for the 1946 models include allowances ranging from $105.98 to $149.46 for engineering improvements and design changes. . . . These include hydraulic automatic window lifts, larger front and rear bumpers, translucent plastic steering wheel, larger oil pump, smarter interior appointments, and a redesigned radiator grill and instrument panel.

●

OFFERS FINANCIAL ADVICE

● How small businesses may obtain credit and capital for sound business ventures, is explained in a bulletin on *"Credit Sources for Small Business"* issued recently by the U. S. Department of Commerce.

The private commercial bank is still the main source of business credit, the bulletin says, and small businesses have even more reason to turn to their bankers for credit help than have large companies, which have increasingly relied on internal financing and on the issuing of securities, to meet their capital and credit needs.

ARROW SAFETY DEVICE CO.
MOUNT HOLLY, N. J.

Keep your trucks rolling with
Exide
LONG LIFE BATTERIES
THE ELECTRIC STORAGE BATTERY CO.
Philadelphia 32
Exide Batteries of Canada, Limited, Toronto

The bulletin discusses in detail the types of credit extended by such diverse institutions as banks, industrial banking companies, small loan companies, factors, sales finance companies, miscellaneous finance companies, insurance companies, equipment manufacturers, wholesalers and similar suppliers, individual investors, investment bankers, corporations seeking affiliates, branches or outlets, the Reconstruction Finance Corporation, Federal Reserve Banks, Smaller War Plants Corporation, Federal Housing Administration and community industrial development groups.

Many banks are now setting up special small business departments, according to the bulletin, which states that in the choice of a bank, the small business man should "choose a banker who possesses character and leadership, one who is willing to assume a risk, providing there is a reasonable chance of repayment; a progressive banker, one who is alert to current industrial trends, willing to make loans for new products and more efficient processes."

"Such a banker," the bulletin says, "knows that in a world of rapid change, risk is a matter of careful analysis, not merely of traditional soundness."

The community banker, who more often than not is a small business man himself, may be more receptive to the needs of the small business man than the larger city bank, the bulletin says, but sometimes the larger banks quote more favorable rates and the only answer is to compare.

Once the small business man has chosen a banker, he should consult him frequently, visiting him at his office and inviting him to return the visit, the bulletin advises, and adds:

"Show him around. Invite him to look over your books. Freely explain your plans to him, especially if they involve expenditures out of the ordinary. Do not try to conceal difficulties from him. It is part of the banker's code not to betray confidences. Mutual frankness is the first basis of good banking relations."

Business men who can qualify should be able to turn to their bank for one of the following types of loans, according to the bulletin: Character loans, term loans, installment loans, loans on accounts receivable, loans secured by warehouse and field warehouse stocks, and equipment loans.

The difficulty small businesses often encounter in securing adequate credit is also discussed, and the bulletin notes that "small concerns have often had to resort to the unsound practice of using renewable short-term commercial loans for working capital, for long-term seasonal capital, or even to take the place of fixed long-term capital."

In general, the bulletin says, the business man is justified in seeking a loan, when he can use it to cut costs or otherwise increase efficiency by more than the cost of obtaining additional funds, but he should not forget that "other things being equal, the company that gets the credit it needs at the least expense wins."

The booklet is designed for widespread distribution among small business men and may be obtained by banks, or other financial institutions wishing to distribute it, or by individuals themselves, from the Superintendent of Documents, Washington 25, D. C., or from Department of Commerce field offices at 15 cents a copy.

Assured meshing of the starter pinion with the flywheel gear is essential for quick, sure starting and Bendix* has accomplished this with its Barrel-Drive construction.

This unique and exclusive construction protects the triple threads from exposure to oil, clutch dirt and other foreign matter. It permits the smallest possible pinion to work directly on the armature shaft thus providing maximum cranking efficiency with the minimum number of teeth.

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EDWARDS SEMI-TRAILERS

LAST YEAR'S TIRE FIGURES

• The Civilian Production Administration recently issued a final report of tire production for the year of 1945, the highlights of which are quoted here:

Truck and bus tire production was up 12 percent in 1945, but over one-third more such tires went to the civilian replacement market than in 1944.

Tractor and implement tires, on which rationing was removed in August 1945, continued to go to civilians in increasing numbers. Fifty-five percent more of these tires was available for civilians last year than in 1944.

Production of passenger-car and motorcycle tires last year was 28,292,112 tires, 50 percent above 1944 output. The bulk of this production went into civilian replacement channels, giving motorists 40 percent more tires last year than they got in the peak war year of 1944. Nevertheless, production of tires for civilians last year was still about one-third under pre-war replacement sales.

Noting a tendency for civilians to reduce their practice of recapping tires followed during the war, CPA officials warned that this may result in trouble for tire users during the current year, as this year will not see tires in plentiful supply.

"Tire users," they said, "should continue to care for their tires as they did during the war. Recapping is an economy and a means whereby many thousands of miles of driving may be added to the tires at present on rolling wheels."

•

"PRIORITIES" for TRUCKS

• Manufacturers of concrete building products are now eligible for priority assistance under an amendment recently issued by the Cilivian Production Administration. . . . This amendment will enable CPA to issue "CC" ratings to concrete building product manufacturers for the purchase of trucks.

So far, CPA has not found it necessary to issue any "CC" ratings to expedite the delivery of truck-trailers. It has, however, been necessary to issue a small number of ratings to assist applicants in essential industries to obtain trucks.

•

TRUCK RENTAL PRICING

• OPA announces that "automatic pricing" has now been provided for all parts of the United States for rentals of motor vehicles, trailers and accessorial equipment for use in connection with construction, road maintenance or housing projects. The new order applies to equipment either on a "bare" or "fully maintained and operated" basis, and is known as Order No. 3 under MPR No. 571.

Previously, automatic pricing methods had been provided only for Region 8 (California, Washington, Nevada, most of Oregon and Arizona and part of Idaho) and for Region 5 (Texas, Oklahoma, Kansas, Missouri, Arkansas and Louisiana). Persons located outside these regions heretofore have had to file individual applications for approval of the same rates that were established for Region 5.

The present action makes the Region 5 rates automatically applicable in all parts of the United States outside of Region 8. It involves no change in the rates or rate structure

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for such rentals in any of the areas affected, because the rates previously established by individual orders were the same as those established for Region 5.

The new action, however, will obviate the necessity for filing individual applications and will lighten the administrative burdens of the Office of Price Administration by eliminating the need for setting ceiling prices in individual rate orders. Moreover, to the extent that it simplifies procedure, the action will contribute toward alleviation of the current housing emergency.

•

RMA's RUBBER REPORT

• The tire industry produced approximately one tire for every automobile on the road in 1945, according to estimates on last year's production released recently by the Rubber Manufacturers Association.

Production of passenger-car casings totalled 28,147,538 units. With the armed services taking millions of casings, 1945 truck and bus tire production far outstripped 1941 output. The estimate showed 16,346,411 units in 1945; 11,148,278 units in 1941. As in the case of passenger-car tires, currently the chief uncertainty in the truck and bus tire production picture is the textile shortage.

The estimates on 1945 production also covered passenger, truck and bus tubes. The year's production totaled 41,101,866 units. This compared with 57,432,767 units in 1941.

Tire output continues at high levels. About 15,000,000 passenger-car tires and 3,800,000 truck-bus tires should be produced in the first quarter of this year, as against 11,100,000 and 3,100,000 respectively in the preceding quarter.

•

CPA's RUBBER REPORT

• Estimates of the supply of natural rubber, based on Combined Rubber Committee allocations of this material for shipment to the United States through March 1946, indicate potential receipts as high as 150,000 long tons in the first half of the year. The relatively heavy imports reflect the movement of captured rubber stocks from Far Eastern producing areas. This movement has already permitted some increase in the usage of natural rubber in this country.

Thus a revision of the rubber control order (R-1) on February 1 permits an estimated monthly consumption of 10,000 long tons of natural rubber, as compared with the 6,500-ton rate prevailing for civilian products immediately following V-J Day.

The revision in the rubber order will result in improved quality of certain special purpose tires, such as earth-mover, rock service, and logger tires, but will have no effect on the passenger car-tire specifications.

An increased use of natural rubber is permitted in certain products, including conveyor belting, rubber bands, and erasers, and the use of a restricted amount of the natural product is now permitted in 100 items for which it had been barred during the war; for example, boots, artics, gaiters, rubbers, and canvas rubber-soled shoes.

Further steps in this direction will depend primarily on the progress of rehabilitation and new production in the Far Eastern rubber-producing areas, factors about which there is still great uncertainty.

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THE HANDIEST — QUICKEST WAY TO SAFELY REPAIR ALL TYPE TUBES

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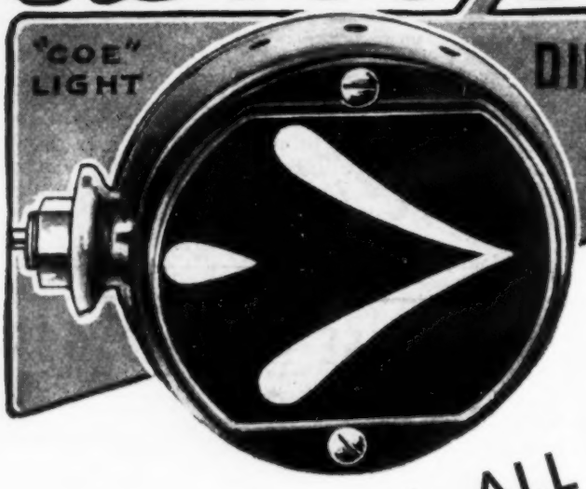

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THE TELEOPTIC CO.
1275 MOUND AVENUE RACINE, WISCONSIN

THOSE "POST-WAR" TRUCKS?

● Something new will definitely have been added to many 1946 models of trucks and virtually all 1947 models. While they will still *look* like trucks, there will be a great difference between them and their pre-war predecessors, offered as "1945" models for expediency's sake, in order to get into quick production.

Many have the opinion that larger (or more powerful) engines will appear—something that will really be capable of pulling "full" loads at traffic-restricted maximums, which are believed to be in the neighborhood of 60 m.p.h. when the "post-war" period finally arrives.

It is also rumored that the so-called 1½-ton truck, which has been featured principally by the volume producers, may be stepped up to the extent that it can be nominally termed a 2½-tonner. Or, putting it another way, the rumor says that the volume truck makers, who have previously built nothing bigger than a 1½-tonner, may add a 2½-ton model in the 20,000 lb. g.v.w. range.

It may also be reasonably expected that some changes will be made in the methods of power transmissions—not that everything will be automatic transmissions, but there will be a change, and it may be a noticeable one.

By 1947, too, the manufatcurers will have had ample time to make up their minds as to what they are going to do about using the lighter metals more extensively, since the cost of such materials has been pulled down by volume wartime production.

You may also expect quite an increase in driver comfort. Ventilation will be better; there will be new heaters available; and there may even be air-conditioning for the driver as well as the cargo. And, of course, he is going to have a better seat, better visibility and more accessories than he has ever had. And maybe a practical version of power steering, to help him swing them around; and better brakes to enable him to stop 'em.

Of course, with labor unions and strikes prominent in the news, as they are as this is written, it is difficult to feel optimistic about things of this kind. But we've had them before, and the industry came out with improved products; and they'll do it again. . . . But don't look for them "tomorrow"; late in 1946 would be a good bet; 1947 would be a better one.

●

OPA ON "CAR TRADES"

● The OPA reports that many automobile dealers are reported to be using certain evasive practices in the pricing of trade-ins, that constitute serious violations of MPR No. 594, which covers the sales of new passenger-cars.

OPA stresses that dealers are obligated to pay a "reasonable value" for an old car turned in as a trade-in, as anything less would merely be a subterfuge which would amount to increasing the price of the new vehicle sold.

Dealers are obligated to allow for a used vehicle, the *lower* of: (1) The "as is" ceiling, or (2) the fair market sales value for the top grade used car sold "as is", minus, in either case, the retail price for any necessary repairs.

When trading in used cars, you are urged to see that the dealer computes the value of same by referring to MPR No. 594. This will be found under Section 23.

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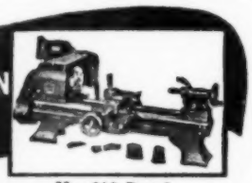
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MORE ON RADIO-TELEPHONY

● Those automobile, bus and truck owners who have the desire to experiment with radio-telephone communication will probably be granted this opportunity before long. . . . A new radio-telephone service is being planned which will be coordinated with a national telephone company's network. Operators who are interested may acquire their own mobile telephone apparatus, which is now being manufactured.

The Federal Communications Commission has approved radiophone service installations in 20 major cities, and is considering applications from 32 additional cities.

The first of the new radiotelephonic connecting stations of the service are to be installed near three major intercity highway routes. . . . The trial service will be on a highway between Chicago and St. Louis. The other routes are to be established between New York, Albany and Buffalo and along the highway from New York to Boston.

●

SCHOOL BUSES PERFORMED

● Over four and a half million children are carried daily between homes and classrooms by the country's hard-working school buses.

But like other forms of civilian transportation, these brightly-colored vehicles, whose work takes them down rural lanes, along country highways and city streets, were faced with severe wartime operating handicaps.

During the war years, according to a recent report of the Office of Defense Transportation, the number of school buses in operation dropped from 93,306 to 80,831.

Yet, at the close of the period, nine percent more children were being transported than at the start, with each bus adding a 29 percent increase to its passenger load.

Mileage traveled showed an equally impressive increase, the report shows. The average route miles traveled per bus towards the end of the war was 38 per cent above peacetime. Currently, the average school bus must be driven 18.9 miles to serve its route.

●

LITTLE RUBBER for 2 YRS.

● An unlimited supply of natural rubber may not be available for another two years, according to the CPA. . . . If natural rubber receipts continue during the next six months at present estimates, the manufacturing industry may be able to use 25 percent natural to 75 percent synthetic, in place of the present overall 10 percent to 90 percent proportion. (These percentages will vary, of course, from product to product). . . . Difficulties of restoring production in the Far East are slowing up the supply, CPA says.

WHAT THIS CAR NEEDS IS A GOOD

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DOOR SWITCH
No. 9001
No. 9002

Chrome finish. Standard equipment on prominent cars.

This is just another of those quality replacement parts for which Cole Hersee is so famous. For dependable performance which results in customer satisfaction, supply Cole Hersee equipment, the most complete line of automotive electrical essentials in America. Send for catalogue today.

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Dash Lamps
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Quality ELECTRICAL AUTOMOTIVE EQUIPMENT

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PROTECT
WHAT YOU HAVE

With truck and garage equipment replacements either impossible or hard to get, and in every instance higher in price, it is only good management to *guard what you have.*

Protect against fire by having every vehicle and every vulnerable location in your garage equipped with a dependable fire extinguisher. Don't allow a small fire to become destructively big during those crucial moments it takes to bring an extinguisher from some other location. Be prepared to fight any fire *instantly.*

We suggest this needed equipment be Buffalo *better-built* Fire Extinguishers. Back of them is a company that has specialized in dependable fire-fighting equipment for over half a century.

BUFFALO better-built FIRE EXTINGUISHERS
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NOT MANDATORY

● No seller is required to accept tires or tubes in trade on new ones, and no seller may demand the buyer to trade-in tires or tubes in order to purchase another tire or tube, according to OPA. . . . This is covered in a late amendment to Revised MPR No.. 528.

●

COMMENT ON SYNTHETIC

● American ingenuity has put this country in a position that it never again need fear any nation or cartel controlling the source of natural rubber, R. T. Brown, Goodyear Tire and Rubber Company development department administrator, told 300 members of the American Taxi Association in Chicago recently.

Neither need this country fear any unfriendly nation cutting off America's supplies of crude rubber, Mr. Brown pointed out, as a result of the synthetic rubber industry which has been built up during the war period.

From a tread wear standpoint, synthetic rubber tires for passenger-cars are better than the best pre-war tires, and much better than the average quality pre-war tire, the Goodyear spokesman declared. The new synthetic butyl rubber inner tube likewise has come out of this war and is capable of holding air much longer than the best of pre-war tubes. This characteristic is so desirable in an air container as to indicate that the synthetic butyl tube will be used, regardless of the return of natural rubber to this country in great quantities.

Speaking of the future of rubber, Mr. Brown said that natural rubber is not going to be available as rapidly as most of the American public believes. He predicted that passenger-car tires would probably be the last ones to return to natural rubber, but said the American public need not be perturbed, since the synthetic rubber tire is proving so satisfactory.

The ultimate level between natural and synthetic rubber and between rayon and cotton, will lie in the relative economic values of the respective materials, he pointed out. Rayon is superior to cotton in the sense that it is smaller, flexes easier and gives a thinner tire which consumes less power and has vastly greater bruise resistance than the finest of cotton cords, according to the Goodyear spokesman.

Three principal factors in obtaining the greatest degree of security and economy in vehicle operation were cited by Mr. Brown as use of heavy-duty tires, rib tires for the front wheels and non-skid tires for the rear, and proper inflation of tires.

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VEHICLES MOVING
ECONOMICALLY
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THE HALL MFG. CO.
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SAVE TIRES

SPEAKER Rubber Rivets seal nail holes and small breaks. A quick pull on the wire needle makes a repair that outlasts the tire. Prevent fabric rot and blowouts with Rubber Rivets. Get some from your jobber today.

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WAR PROFITS WERE HALF

• Automobile manufacturing companies made only one-third to two-fifths as much profit on sales in the war years as the percentage made in peacetime.

Net profits of the industry, after taxes, averaged less than 3 cents out of every dollar, for the years this country was at war, according to a survey of the industry, excluding automotive parts makers, recently completed by the Automobile Manufacturers Association.

Net profits during the first nine months of 1945, the most recent period for which figures are available, averaged 2.94 percent per dollar of sales, or about the same as the average for the war years of 2.98.

This compares with a net profit of 8.25 percent on sales after taxes in 1939, and a net profit of 7.07 percent in 1940.

Throughout the war, reductions in the cost of weapons were reflected promptly in price reductions to the Government, rather than in profits, largely as a result of application of automotive production methods. Between the early months of the war and V-J Day, average contract prices were reduced more than one-third on aircraft, guns, tanks and other war equipment.

Net profits of automobile makers dropped from an average of 6.45 percent on sales in 1941, when the bulk of production was for civilian use, to a low of 2.6 percent in 1944, the peak year of war production. The average net return on sales was 3.56 percent in 1942 and 3.1 percent in 1943, the survey concluded.

•

NEW SAFETY SLIDE-FILM

• A typical day in the life of a pick-up and delivery truck driver, and the way he avoids accidents, is depicted in a new sound slide-film entitled *"P.U.D. Driver Wins Again,"* completed by the National Safety Council.

The film points out that many hazardous situations are encountered in city driving, but that the driver with skill, courtesy under trying conditions, and the right attitude about accident prevention and its relation to job success can avoid mishap.

A gremlin representing temptation constantly urges a 10-year safe driver to take a chance and risk an accident, but the driver preserves his perfect record. Interest is added to the film by realistic photography through the windshield and cab windows.

Accident experience shows, according to National Safety Council statistics, that city trucking, especially in the for-hire category, has a poorer safety record than inter-city and overland carriers.

Further information may be obtained from the National Safety Council, Inc., 20 North Wacker Drive, Chicago 6, Ill.

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The first Automobiles in America carried Tool Kits made by
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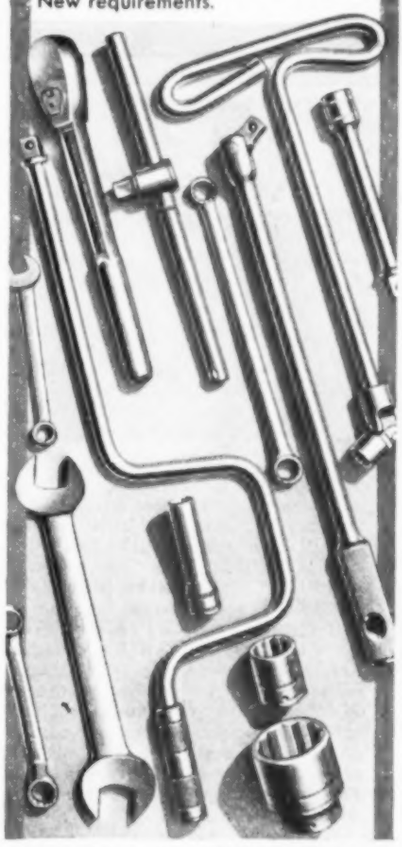
The New Automobiles will carry less tools: But the Mechanics—will need New Tools designed by WALDEN WORCESTER Engineers to meet the New requirements.



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THE COMPLETE LINE THAT COMPLETELY SATISFIES

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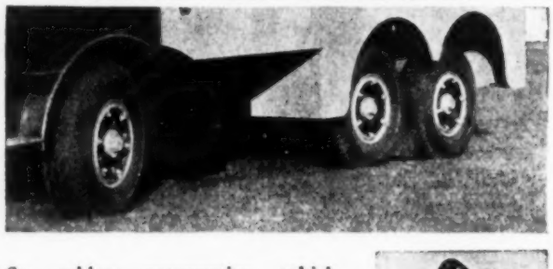

So, rubber conservation, which means getting the most from each tire in your fleet, should start with the EVERHOT RECORD SYSTEM and branding each tire. The EVERHOT RECORD BRANDING TOOL quickly puts big numbers on tires—any set of numbers or letters. The EVERHOT TIRE RECORD SYSTEM — furnished with the purchase of the branding tool, helps you to prolong tire life and keep operating costs to a minimum. You'll find EVERHOT products your most valuable tire tools. Full information is yours, if you'll write.

Everhot MFG. COMPANY
MAYWOOD, ILL.

Some Notes on Air-Conditioning

THE age of 100 percent air-conditioned transportation is near at hand, spokesmen for the mechanical refrigeration and air-conditioning industry recently disclosed.

Soon, travelers in vehicles ranging from automobiles to airplanes, from trailers to trolley-coaches and from buses to railroad cars will enjoy automatically-conditioned air, no matter where they are going or how high or low the outside temperature may be.

In a round-up of reports from all branches of the transportation industry, the Refrigeration Equipment Manufacturers Association cited these examples of what the American traveler may shortly expect in "mobile air-conditioning";

Automobiles—More compact, lighter and easier-to-install air-conditioning units are reported to be well past the experimental stage, with at least one manufacturer planning early introduction of units with separate motors which both cool the air in summer and heat the air in winter.

Airplanes—Indicative of progress in this direction is the use of pressurized and comfortably air-conditioned cabins in United Air Lines' new 52-passenger, four-engined, 300-mile-per-hour, DC6 planes to be ready in 1946.

Trolley-Coaches and Street-Cars—The first air-conditioned trolley-coaches already have been placed in service in Atlanta, Georgia, and one of the nation's largest makers of transportation equipment is pushing development work in other phases of the municipal transportation field.

Buses—Greyhound, for example, already has ordered more than 200 "cruiser coaches" of the luxury type, costing upwards of $25,000 each with improved air-conditioning systems.

Railroad Cars—In a survey recently completed by the New York Central, 160,000 sleeping-car passengers ranked air-conditioning as the greatest single contribution to rail-travel comfort—choosing 72 degrees as the ideal winter temperature and varying summer temperatures according to outside heat. . . . Acting on public preferences such as this, railroads are reported to be putting air-conditioning near the top of the list of post-war improvements.

Most of the new-type mobile air-conditioning units go far beyond cooling the air. In the new systems in the Atlanta trolley-coaches, for example, air is dehumidified at a rate "equal to that in latest design railroad cars and twice that required for some present

ELIMINATE SANDING and ELBOW GREASE
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Ask your jobber or write for Bulletin 44-5.

JOBBERS: Add profit with Metalprep.

NEILSON CHEMICAL CO.
6572 Benson St., Detroit 7, Michigan
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inter-city buses." Pressurizing airplane cabins so that travel is comfortable at any altitude, also is being linked with air-conditioning.

All along the transportation front, mechanical refrigeration also is being used in a wider and wider variety of ways. From one quarter comes a report that some new automobiles—probably to be introduced in 1947 or 1948—may even have refrigerators for beer. New bus line "post houses" will contain refrigerating equipment for food and drink service as well as air-conditioning. Air lines are soon to introduce complete meals that are "quick frozen" on the ground, then "defrosted" and heated on special equipment in the air.

●

Conducts "Private School" for Mechanics

THE proprietor of one of the largest automobile servicing shops in the West has been conducting a unique mechanics' school for the past fifteen years. He starts the men young and turns them into highly-skilled specialists in a very short time.

The plan is to get mechanics by advertising for young men from sixteen to twenty years old. When picking the men who seem most promising, the first principle they are impressed with is that they must work fast and learn to conserve time on every job.

The young men are assured a fine future, receiving salary increases from time to time, in proportion to how profitable their work is to the shop. The beginner first learns how to use a wrench and to pull a radiator. The reason that radiator pulling is a first assignment is because it must be done quickly and fleet owners demand rapid service. Each new man "learns while doing," by working with an experienced mechanic. Eventually they must gain a knowledge of how to do everything in the shop, but they are encouraged to specialize in some type of work which comes naturally to them.

The psychological use of competition encourages the young men to learn rapidly and well, and every effort is made to stimulate pride in good performance. Neither in the shop nor among the customers, are the men considered or treated as plain automobile mechanics, but as a group of automotive specialists. The "students" are given every possible attention to assist them in their learning.

These mechanics view their jobs and each other with professional respect and are thoroughly imbued with a policy of never giving a promise of delivery either to a customer or a fellow worker, unless it can be fulfilled in the time allowed.

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THEY'LL come largely from the trucks that have been serving you faithfully all through the war years. So give them the best of care until you can replace them. One of the important things to do is to balance the wheels regularly, thereby eliminating destructive vibration. You'll find that wheel balancing, besides lengthening the life of your trucks, will save you many major repair bills.

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for wall chart showing the pounding effect of unbalanced wheels.

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No Tester Gives you SO MUCH for the Money as the "KING" MT-795

This organization is a pioneer in the manufacture of Testers and Battery Chargers. Down through the years "KING" Testers have been noted for their efficiency. Another important factor is that "KING" Testers give you the very most for your money. The "KING" MT-795 is an outstanding value. It has several new improved features that contribute to efficient operation. It will make all motor and ignition tests — it has the "KING" all electric patented Spark Plug Tester and the "KING" patented Cam Angle Tester. It is a lot of tester for the money.

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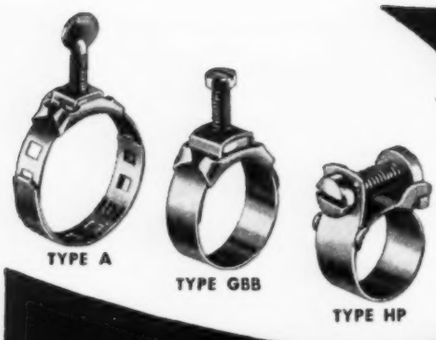

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"Spot Delivery" Demanded, Says Fruehauf

"IT is no longer satisfactory to deliver parts and materials to just any loading dock in many modern plants. The delivery must be made at the proper docks adjacent to the point where the part or material fits into the manufacturer's plans," points out Harvey Fruehauf, Detroit manufacturer of truck-trailers.

Says Mr. Fruehauf: "Traffic and production managers, as well as other department heads, in the modern plant, are insisting that motor transport be designed directly into their new buildings, in order that internal hauling be eliminated as much as possible. In many instances, parts go from the truck-trailer directly to the mechanical conveyor system, completely eliminating the stockpile.

"Such an arrangement permits full advantage to be taken of the inherent efficiency of motor transport and results in speeding turnover, while cutting inventory to the minimum. The manufacturer is then in a position to quickly adjust his schedules exactly to the fluctuation of demand and hence avoid what used to be considered an inevitable business risk."

●

U. S. Bus Methods Proposed for Use in Britain

THE American system of bus transportation, including modern automotive design, operating facilities and passenger traffic handling, was cited as a standard for adoption in England at a recent meeting of over a hundred British automotive engineers.

It was pointed out that the difference between American and British bus manufacture and operation was caused more by the general approach to the transport problem in England, rather than differences in conditions or geography and that if traffic congestion was to be reduced, some American highway transportation practices would have to be employed. America's recognition of the need for good highways was considered the basic contributing factor to its improvements in the construction of high-powered buses with increased passenger capacity.

The engineers favored legislation to liberalize England's sizes-and-weights laws, such as are now in effect in many American states. The regulations would be on broad lines and subject to local conditions. It was proposed to permit an increase in width from 7 feet 6 inches to 8 feet, and lengths up to 35 feet, and to try these buses out in selected localities, examine results and extend their use wherever suitable roads permitted the laying-out of routes.

During the lectures, data on bus transportation in

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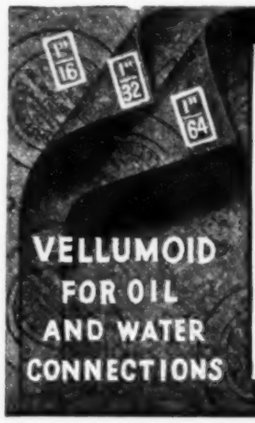

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America was presented with slides, illustrating loading and unloading methods and trends in automotive design. Among numerous manufacturing ideas, the universal American system of power-operated doors was recommended. An interesting fact bearing on the safety aspect of passenger loading was that out of 470 British bus accidents in one area, 220 had been step accidents.

•

G.I.'s Learn Motor Mechanics in Bed

A GREAT boost in the morale of injured war veterans has occurred in many Army hospitals throughout the country, as a result of the successful application of the "study while you wait" plan, operated under the direction of Major General Norman T. Kirk, Surgeon General of the Army.

Training kits and Field Servicemen have been made available to the hospitals for training mechanically-minded veterans to prepare themselves for the future in the automotive field.

One of these courses of instruction is so arranged that even men who must stay in bed can study and practice with various automotive gadgets. The other course is very much like the automotive program which was set up in the field to train soldiers before going into action.

Fieldmen set up the courses and appoint and train instructors at the hospitals. They provide help in securing training aids, films, take-down kits, demonstration models, exhibit material and automotive equipment and parts for the courses, to be studied in bed as well as the other courses.

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The KEEL all-use lifetime, electric brander — Complete with code and record system. Write for free price list and details.

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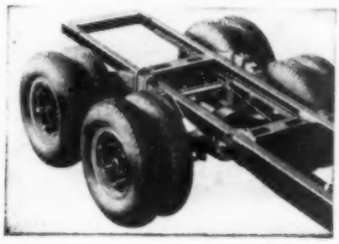

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States Continue Car Registration Deferment

THE present custom in the various states to move automobile registration dates away from the first of the year has been well received by vehicle owners who have found it more convenient to pay these fees at least a month or more after January 1, because of the heavy drain on finances during Christmas, and for taxes.

Another important reason for these shifts in dates is that a great number of states reach their worst peak of winter weather during the early months of the year, limiting the use of motor vehicles.

This practice has resulted in a lack of uniformity among the states in setting these dates ahead, but, the idea has been to take care of the automobile owners' needs.

A good example is the marketing of the cotton crop in Alabama, Mississippi and South Carolina, which comes in October and November. Massachusetts, North Dakota, and Washington have expiration dates in December. Arizona, Arkansas, Florida, Iowa, Nevada, New York and North Carolina have dates in January. California, Connecticut, Indiana, Louisiana, Missouri, Montana, Nebraska, Oklahoma, Oregon, Utah, Kansas, Wyoming and Maine in February. Colorado, Dist. of Columbia, Georgia, Idaho, Kentucky, Maryland, New Hampshire, New Jersey, New Mexico, Ohio, Pennsylvania, Rhode Island, South Dakota and Vermont, in March. Tennessee, Virginia and Texas, in April.

Wisconsin has adopted an entirely new monthly system of dating the license tags with coded numerals and letting the plates expire throughout the year. Illinois is "indefinite". Michigan issues full-year and half-year plates. West Virginia requires registration as of the end of the fiscal year, June 30. Minnesota has no extension dates. Delaware has expiration dates in the four months of March, June, September and December.

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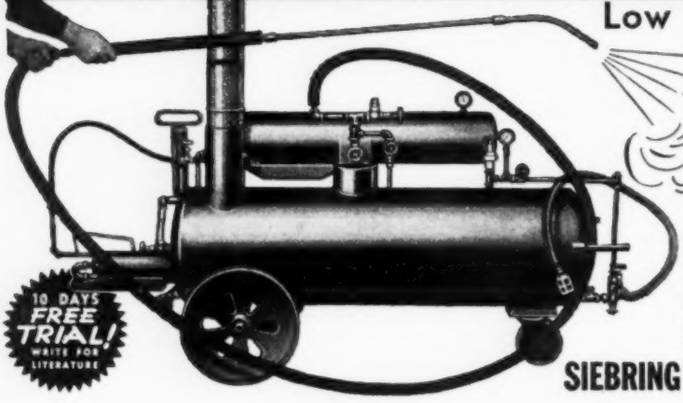
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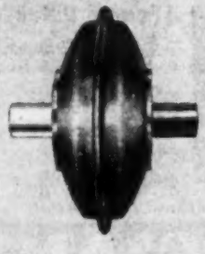
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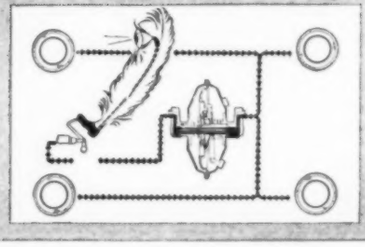
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No Conflict Seen in Highways and Housing

HIGHWAY construction and the housing program can go along together in 1946 without competition for critical materials, according to a study of six groups of building materials by the Federal Works Agency.

The survey shows that highway building will consume either none or only negligible quantities of the materials in question.

Housing needs the following in 1946: 160,000 tons of cast iron soil pipe and fittings; 1,840,000,000 unglazed brick; 250,000,000 feet of gypsum board; 140,000 tons of structural clay tile and 6,500,000 board feet of lumber in addition to millwork and flooring.

Highways' only requirements in these materials are practically no soil pipe, about 1 percent of the total production of brick and some 1 percent of total lumber production.

●

"Pennsylvania Highway Facts" Now Ready

PENNSYLVANIA state highway receipts during the decade 1934-1943 aggregated $976,563,000, composed of $860,451,000 motor fuel tax, registration fees, and motor carrier imposts; $98,975,000 Federal Aid; $2,219,000 other Federal contributions; $6,738,000 received for highway use from local government jurisdictions; $2,478,000 earning of sinking fund; and $5,702,000 miscellaneous income.

Disbursements during the same period totaled $958,737,000, covering $20,099,000 cost of collection and administration of motor vehicle imposts; $299,289,000 for construction; $240,787,000 for maintenance; $75,517,000 for administration, engineering and equipment; $35,137,000 for state highway police; $33,257,000 repayment of borrowed money and $29,577,000 interest on debt; $106,528,000 expended on local roads or made available to minor jurisdictions for that purpose; and $118,547,000 for non-highway purposes.

This does not include the construction of or tolls collected on the $70,000,000 Pennsylvania Turnpike, administered by the Turnpike Commisssion, which was financed by a Federal grant of $28,000,000 and a bond issue of $40,800,000.

These figures are calculated from data in the *"Highway Facts"* studies being issued by the National Highway Users Conference for each state, compiled largely from official tables of the Public Roads Administration. Single copies are available for a number of states at $1.00 each. Quantities of ten or more, 75¢ each.

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. . . "Seventy-two percent of our valve overhauls and adjustments have been eliminated by H & H hardfacing. We were not having valve trouble but found an excellent service which increases valve assembly life profitably." . . . H & H valves are as much as $3.50 per valve less than others thus making possible 100% installation with great savings in valve replacements, maintenance costs, and lost truck time. Write for information and quotations on your model trucks.

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